

February 20, 2019

Vita

TODD S. BACASTOW
Department of Geography
College of Earth and Mineral Sciences
The Pennsylvania State University
2217 Earth-Engineering Science Building
University Park, Pennsylvania 16802

Phone (814) 863-0049 (personal office)
(814) 883-7358 (mobile)

PRESENT POSITION

Teaching Professor of Geography
Department of Geography
The Pennsylvania State University
University Park, PA 16802

NON-UNIVERSITY APPOINTED FACULTY POSITIONS

United States Geospatial Intelligence Foundation
Chair, Academic Planning Committee
2325 Dulles Corner Boulevard, Suite 450
Herndon, Virginia 20171

EDUCATION

The Pennsylvania State University, Ph.D., Geography (1992)
The Pennsylvania State University, MS, Geography (1983)
United States Military Academy, BS, Engineering (1974)

PROFESSIONAL EXPERIENCE

Teaching Professor of Geography (2007-present)
Department of Geography
The Pennsylvania State University
University Park, PA 16802

Teaching Professor for Penn State's Graduate Certificate in Geospatial Intelligence, Geospatial Intelligence option within both Penn State's Master of Geographic Information Systems and the Professional Master of Homeland Security. Teaches courses in Penn State's Master's of Geographic Information Systems program and the Master of Homeland Security in Geospatial Intelligence. Responsibilities include mentoring faculty; advising masters degree students, teaching five geography courses; serving as a leader of geospatial intelligence research, devising applications of research in geospatial analytic learning, and applying the results in the teaching of students; engaging in service activities improving teaching, research, and the work environment of the University.

Senior Research Associate (2000 - 2007)
Earth and Environmental Systems Institute
College of Earth and Mineral Sciences
Pennsylvania State University, University Park, PA 16802

Responsibility for advancing the educational, research and service opportunities of the Penn State Earth and Environmental Systems Institute; expanding cooperative research opportunities within the University; developing research opportunities outside the University; and providing technical leadership in the area of geographic information technologies. Taught classes in Geographic Information Systems and Relational Database Design. Planned and conducted workshops and conferences in Geographic Information Systems, web-based geographic information systems, and wireless technologies. Co-Principal Investigator for a \$20-million project collecting orthophotography and LiDAR for the landmass of the Commonwealth of Pennsylvania. Principal Investigator and project manager for a \$10-million program using geospatial technologies for studies relating to the impact on ecosystems on military training lands. Consultant to the Federal Geographic Data Committee on matters concerning the development of nationwide Geographic Information Systems infrastructure. Performed NASA sponsored research on linked health-environment issues. Lead developer in the creation of a peer-to-peer Geographic Information System design that was being tested by the U.S. Department of State in Africa. Served as an advisor to the State Legislature to organize hearings on GIS-related policy matters for the Pennsylvania Legislature; testified before committees of the Pennsylvania legislature on issues of public policy concerning Geographic Information System Technology.

Senior Research Associate (1994-2000)
Environmental Resources Research Institute
Pennsylvania State University, University Park, PA 16802

Prepared and taught numerous courses on Geographic Information Systems use and development. Served as the University Geographic Information Sciences Coordinator under the Vice President for Research. Coordinated mapping support for the National Governor's Conference which included assistance to the Pennsylvania Emergency Management Agency and maps for meeting participants. Conceived, developed, and managed the Pennsylvania's node on the National Spatial Data Infrastructure. Project manager for over \$1 million of Geographic Information System research providing advanced information systems capabilities to the Pennsylvania Department of Environmental Protection. Performed research on the issues of Geographic Information Systems deployment in government. Serves as an advisor to the State Legislature to organize hearings on GIS-related policy matters for the Pennsylvania Legislature.

Assistant and Associate Professor (1983 – 1986) (1991-1994)
Department of Geography and Environmental Engineering
(Formerly the Department of Geography and Computer Science)
United States Military Academy, West Point, NY

Developed course materials and supervised the classroom instruction of thirteen faculty members delivering instruction to over one thousand students per year. Designed curriculum, developed lesson plans, published student study guide, and prepared test materials presented by thirteen instructors. Developed and taught courses on digital image processing techniques. Designed curriculum to integrate GIS and Global Positioning System (GPS) technology delivered to students and professional GIS users. Performed research in spatial error handling and advanced research in geospatial system designs and evaluation.

Commissioned Officer (1974 – 1994)
Infantry Officer/Geospatial Intelligence
U.S. Army

Served in a variety of US Army assignments in the United States and Europe. Defined requirements, directing software development, and conducted introductory training for the first Geographic Information System delivered to intelligence units of the U.S. Army. Planned and supervised staff activities of a 600-person organization delivering geospatial intelligence to 200,000 individuals. Performed as a personal aide to a high-ranking official in politically sensitive Berlin and acted as the Army Corps of Engineer representative to the US State Department responsible for planning civic action projects in Africa.

CONSULTANCIES (PAID AND UNPAID)

McElroy, Deutsch, Mulvaney & Carpenter, LLP to provide expert witness services in connection with Deborah A. Strong v. New Jersey Pinelands Commission, OAL Dkt. No. CRT-13856-13 (2017-present).

The Boeing Company, Boeing Defense, Space & Security, Proprietary Information Agreement, St. Louis, MO (2016).

Raytheon Company, Intelligence, Information and Services, Proprietary Information Agreement, Dallas, TX (2016-present).

Whitespace Solutions, Proprietary Information Agreement, Alexandria, VA (2015).

Kilpatrick Townsend & Stockton LLP representing AT&T to provide expert witness services in connection with SourceProse, Inc. v. AT&T Mobility LLC, et al., Case No. 1:11-cv-00117-LY U.S. District Court for the Western District of Texas (2011-present)

National Geospatial Intelligence Agency, Cooperative Research and Development Agreement Number HM1583-CR-FY10-007 (2011-present).

Alston & Bird LLP, Atlanta, GA, representing Move, Inc to provide expert witness services in connection with Move, Inc. v. Real Estate Alliance Ltd, United States District Court Central District of California, Case No. 2:07-cv-02185 (2008-present).

ITT Defense Electronics & Services, provided services on behalf of Pennsylvania State University relating to Geospatial Intelligence, McLean, VA (2008-2009).

Booz Allen Hamilton, Johnstown, PA, provided services on behalf of Pennsylvania State University relating to Geospatial Intelligence (2007-2011).

MountainTop Technologies, Inc., Johnstown, PA, provided consulting services in connection with firearms safety study provided to the Commonwealth of Pennsylvania (2007-2008).

DLA Piper Rudnick Gray Cary US LLP, Philadelphia, PA, representing Diane Sarkisian to provide expert witness services in connection with Real Estate Alliance Ltd. v. Diane Sarkisian, Eastern District of Pennsylvania 05-CV-3573 and Diane Sarkisian v. Andrew Rooke, Mark

Tornetta, Lawrence Husick, Scott Tatro and Equias Technology Development LLC, Eastern District of Pennsylvania 06-CV-0170 (2006-2008).

GeographIT, Lancaster, PA, provided services relating to geographic information systems (2005-2006).

The Commonwealth of Pennsylvania, Department of Conservation and Natural Resources, Harrisburg, PA, provided consulting services on behalf of Pennsylvania State University relating to the Pennsylvania Map project (2003-2008).

The Commonwealth of Pennsylvania, Department of Military and Veterans Affairs, Annville, PA, provided consulting services on behalf of Pennsylvania State University relating to military training and Geographic Information Systems (1996-2013).

PUBLICATIONS AND PRESENTATIONS

Refereed Publications

Bacastow, Todd, Ann H. Taylor, Dr. Dennis Bellaifiore, Stephen Handwerk, and Erin Long (2016). Comparative Geospatial Intelligence Professional Communities, Accepted for publication by the Journal of the International Association for Intelligence Education.

Bacastow, Todd S., Dennis Bellaifiore (2010), *Human Terrain Data Infrastructure*, Speaker's Journal on Pennsylvania Policy: *Building for the Future - Strengthening Pennsylvania's Critical Infrastructures*, Pennsylvania House of Representatives, Volume 9.2, Spring 2010.

Bacastow, Todd S., David Terrell (2010), *Pennsylvania Map*, Speaker's Journal on Pennsylvania Policy: *Building for the Future - Strengthening Pennsylvania's Critical Infrastructures*, Pennsylvania House of Representatives, Volume 9.2, Spring 2010.

Bacastow, Todd S., Dennis Bellaifiore (2010), *Redefining Geospatial Intelligence*, American Intelligence Journal, Spring 2010.

Peuquet, Donna J. and Todd Bacastow (1991), "Organizational Issues in the Development of Geographical Information Systems: a Case Study of U.S. Army Topographic Information Automation," International Journal of Geographical Information Systems, Vol. 5 pp. 303-319.

Guth, P.L., E.K. Ressler, and Todd Bacastow (1987), "Microcomputer Program for Manipulating Large Digital terrain Models," Computers and Geosciences, Vol 13, No. 3 pp. 209-213.

Books, Pamphlets, and Book Chapters

Strater, Laura, Susan P. Coster, Dennis Bellaifiore, Stephen. P. Handwerk, Gregory Thomas, and Todd S. Bacastow (2018). The Human Factors of Geospatial Intelligence, in White, Raechel A., Coltekin, Arzu, Hoffman, Robert R., editors in Remote sensing and cognition: Human factors in image interpretation, Boca Raton, FL: CRC Press.

Bacastow, Todd S., Dennis Bellaifiore (2010), The Learner's Guide to Geospatial Analysis, Fall 2010. <https://www.e-education.psu.edu/sgam/>.

Hall, David, Stan Aungst, Mark Campbell, Jeff Kuhns, David Beyerle, Todd Bacastow, Jason Knox (2007), Fusion of Ground and Satellite Data, in Hall, D. L., & Llinas, J. (2001). Handbook of multisensor data fusion. Boca Raton, FL: CRC Press.

Bacastow, Todd and Gerald Walker (1993), *Terrain Analysis*, Kendall/Hunt Publishing Company, Dubuque, Iowa.

Other Publications

Bacastow, Todd; Dennis Bellafiore, Susan Coster, Stephen Handwerk, Lisa Spuria, and Gregory Thomas (2017), *From Layers to Objects: Evolving the GEOINT Analytic Tradecraft*, 2017 State and Future of GEOINT Report, The United States Geospatial Intelligence Foundation.

Biltgen, Patrick, Todd S. Bacastow, Thom Kaye; and Jeffrey M. Young (2017), *Activity-Based Intelligence: Understanding Patterns-of-Life*, 2017 State and Future of GEOINT Report, The United States Geospatial Intelligence Foundation.

Bacastow, Todd (2016), *A Call to Identify GEOINT's First Principles*. *Pathfinder Magazine*, January 2016.

Bacastow, Todd, Gregory Thomas, Stephen Handwerk (2015), *What Makes GEOINT, GEOINT?* *Earth Imaging Journal*, September 15, 2015.

Bellafiore, Dennis, Todd S. Bacastow, and David Arctur (2008), *Effective SDI Leadership: The Antithesis of Good Management Practice?* *Geospatial Solutions*, Feb 27, 2008.

Bacastow, Todd S. and Dennis J. Bellafiore (2008), *Educating the GEOINT Professional*, *Military Geospatial Technology*, February 19, 2008. <http://www.military-geospatial-technology.com/article.cfm?DocID=2349> (accessed March 28, 2008).

Alter, Theodore R., Todd S. Bacastow, and Tina Cary (2007), *Financing SDIs: Lessons Learned from the PAMAP Experience*, *Geospatial Solutions*, Feb 2, 2007. <http://govm.geospatial-solutions.com/gssgovm/article/articleDetail.jsp?id=402184> (accessed March 28, 2008).

Bacastow, Todd (2006), *Spatial Risk Assessment*. Report prepared for the Legislative Budget and Finance Committee of the Pennsylvania State House of Representatives (<http://lbfc.legis.state.pa.us/>).

Bacastow, Todd S. (2003), *Report and Recommendations to the Pennsylvania State House Veterans Affairs and Emergency Preparedness Committee from the Geographic Information Policy and Homeland Security/Emergency Preparedness*, Harrisburg, Pennsylvania, May 15, 2003.

Bacastow, T.S., B. Bills (2002), *GeoSpatial One-Stop Needs Analysis*, Federal Geographic Data Committee.

Bacastow, T.S., B. Bills (2002), *Final Report, Pennsylvania Natural Diversity Index Audit*, Environmental Resources Research Institute, The Pennsylvania State University, University Park, PA 16802.

Bacastow, T.S., B. Lewis (2002), *"OPUS" (Open Use Server) Report to the Federal Geographic Data Committee*. Original development completed for Mifflin County, Pennsylvania.

Bacastow, T.S. (2002), *WebGIS: More Than Meets the Eye*, American Congress of Surveying and Mapping.

Bacastow, T.S. (2001), *A Strategy for Using Geographic Information Systems (GIS) Technology in Support of the Pennsylvania State House of Representatives Legislative Office for Research Liaison (LORL)*, LORL GIS Subcommittee.

Bacastow, T.S., M.C. Kelly (2000), *Final Report, Pennsylvania Spatial Data Access*, Environmental Resources Research Institute, The Pennsylvania State University, University Park, PA 16802.

Bacastow, T.S., S. Hough (2000), *Final Report: Urban Terrain Characterization*, Applied research Laboratory, The Pennsylvania State University, University Park, PA 16802.

Bacastow, T.S., M.C. Kelly (2000), *Spatial Data Clearinghouse Needs Analysis*, Environmental Resources Research Institute, The Pennsylvania State University, University Park, PA 16802.

Bacastow, T.S., M.C. Kelly, R. Baxter (1999), *Linking Pennsylvania's Ecological Databases*. Environmental Resources Research Institute, The Pennsylvania State University, University Park, PA.

Bacastow, T.S., M.C. Kelly (1998), *Review of the Tri-Services CADD/GIS Spatial Data Standards and Utilities and Environmental Hazards Geospatial Data Standards*. Environmental Resources Research Institute, The Pennsylvania State University, University Park, PA.

Bacastow, Todd S. (1987), *Workstation Supports Commander's Topographic Needs*, Tech-Tran, U.S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, Vol. 12, No. 3, p. 5.

Bacastow, Todd (1986), *MICROFIX Topographic Applications*, Workshop on Geographic Information Systems in Government, Springfield, VA, No. 2, pp. 49-51.

Guth, P.L., E.K. Ressler, Todd Bacastow (1986), *Computerized Terrain Analysis for the Field: Technology and Software Deployable Today*, 15th Army Science Conference Proceedings, West Point, New York, Vol 1, pp. 371-385.

Bacastow, Todd S., P.L. Guth , and E.K. Ressler (1986), *MICROFIX V2.1 Automates Terrain Analysis*, Engineer, Vol. 16, No. 2, pp. 24-25.

Bacastow, Todd and J.J. Cimral (1985), *MICROFIX Deployment Recommendation*, Belvoir Research and Development Center, Report Number 2419.

Significant Presentations

Bacastow, Todd (2017), *Improving the Preparation of the Geospatial Analyst*, National Geospatial-Intelligence Agency (NGA), April 25, 2017.

Bacastow, Todd (2016), Royal School of Military Survey (2016). *Comparative Geospatial Intelligence (GEOINT) Professional Communities*, June 28, 2016.

Bacastow, Todd (2016), International Association For Intelligence Education (2016). *Comparative Geospatial Intelligence (GEOINT) Professional Communities*, European Conference of the International Association For Intelligence Education, Netherlands Military Academy, Castle of Breda, The Netherlands on June 23, 2016.

Bacastow, Todd and Dennis Bellafiore (2014), *The Three Miles Island Accident*, TMI@35 Conference, Penn State Harrisburg, Harrisburg, PA.

Bacastow, Todd (2013), *Improving Geospatial Intelligence*, National Geospatial-Intelligence Agency (NGA), July 2013.

Bacastow, Todd (2011), *SGAM2.0: A Structured Method of Geospatial Intelligence Analysis*, presented at the Esri Users Conference, July 2011.

Bacastow, Todd (2011), *Improving the Teaching of Geospatial Analysis*, presented to International Association for Intelligence Education, June 2011.

Bacastow, Todd (2011), *Teaching Activity Based GEOINT*, presented to American Society for Photogrammetry and Remote Sensing (ASPRS), May 2011.

Bacastow, Todd (2008), *Emerging Competencies Required of the GEOINT Professional*, Panel presentation at the US Geospatial Intelligence Foundation GEOINT Symposium, October 2008.

Bacastow, Todd (2008), *Counterinsurgency and Education the GEOINT Professional*, ESRI Users Conference.

Bacastow, Todd (2007), *Spatial Data Infrastructure Governance*, Symposium on Spatial Data Infrastructures, Pennsylvania House of Representatives, Harrisburg, Pennsylvania, October 2007.

Bacastow, Todd (2007), *GEOINT Professionalism*, US Geospatial Intelligence Foundation Educational Session, GEOINT Symposium, October 2007.

Bacastow, Todd (2007), *Educating the GEOINT Professional*, US Geospatial Intelligence Foundation Technical Days, May 2007.

Bacastow, Todd (2006), *Spatial Risk Assessment*. Presentation to the Pennsylvania Game Commission, December 2006.

Bacastow, Todd (2006), *Spatial Risk Assessment*. Presentation to the Legislative Budget and Finance Committee of the Pennsylvania State House of Representatives, October 2006.

Bacastow, Todd (2005), *Managing Geographic Digital Rights*, Association of Enterprise Architects, Washington Metropolitan Area, December 13, 2005.

Bacastow, Todd (2005), *Lessons Learned from Hurricane Katrina*, Testimony to the Veterans Affairs and Emergency Preparedness Committee, Pennsylvania State House of Representatives, November 17, 2005.

Bacastow, Todd (2005), *Example Mapping and Geographic Information Systems Legislation*, Pennsylvania GIS Conference, Harrisburg, PA, May 2005.

Bacastow, Todd (2005), *Geographic Digital Rights Management*, Pennsylvania GIS Conference, Harrisburg, PA, May 18, 2005.

Bacastow, Todd (2004), *Geospatial Policy: Geographic Information Systems*, One-hour presentation provided to the Statewide Technology and Electronic Commerce Advisory Council

concerning information technology policy issues, January 2004.

Bacastow, Todd (2004), *Geospatial Policy: Spatial Data*, One-hour presentation provided to the Statewide Technology and Electronic Commerce Advisory Council concerning information technology policy issues, February 2004.

Bacastow, Todd (2004), *Geospatial Policy: Boundaries*, One-hour presentation provided to the Statewide Technology and Electronic Commerce Advisory Council concerning information technology policy issues, March 2004.

Bacastow, Todd (2004), *Geospatial Policy: Privacy*, One-hour presentation provided to the Statewide Technology and Electronic Commerce Advisory Council concerning information technology policy issues, April 2004.

Bacastow, Todd (2002), *GIS in Pennsylvania*, Pennsylvania GIS Conference, Hershey, PA (May 2002).

Bacastow, Todd (2002), *Emerging Geospatial Technologies*, GeoWireless Seminar Conference, May 2002.

Bacastow, Todd (2002), *GIS and the Health-Environment*, GeoTec Conference Alliance, Toronto, April 2002.

Bacastow, Todd (2001), *Emerging Geospatial Technologies*, Digital Earth Meeting, Digital Pennsylvania, Harrisburg, PA, January 2001.

Bacastow, Todd (2001), *Geospatial Data Requirements Analysis for the Integrated Incident Management System (IIMS)*, Lockheed Martin, TRW, and the Pennsylvania State Police, Harrisburg, PA, April 2001.

Bacastow, Todd (2001), *GeoData Alliance*, Pennsylvania Geographic Information Systems Conference, Hershey, PA, to be given May 2001.

Bacastow, Todd (2000), *Knowledge Network*, Presentation to the Legislative Office for Research Liaison, University Committee for Research Liaison, Harrisburg, PA, July 2000.

Bacastow, Todd (2000), *Emerging Geospatial Technologies*, Penn State WebGIS Conference, October 2000.

Bacastow, Todd (2000), *Digital Pennsylvania: A Vision*, Digital Earth Meeting, Washington, D.C., October 2000.

Bacastow, Todd (2000), *Digital Earth: A Pennsylvania/Regional Demonstration Vision*, New York State GIS Conference, September 2000.

Bacastow, Todd (2000), Bacastow, Todd, *PaMAGIC.Com: A GIS Utility?*, Presentation at the Pennsylvania GIS Users Conference, Hershey, PA, June 2000.

Bacastow, Todd (1999), *Cubbyholes and Channels – Why Implementing an Enterprise GIS is So Difficult*, Pennsylvania Department of Conservation and Natural Resources, Harrisburg, PA, September 1999.

Bacastow, Todd (1999), "Pennsylvania Spatial Data Access: The Metadata Connection," Environmental Systems Research Institute (ESRI) Users Conference, San Diego, CA, July 1999.

Bacastow, Todd and David Phillips (1999), "Using Collaborative Systems to Achieve a Successful Implementation of the Pennsylvania Department of Environmental Protection's Enterprise GIS," Presentation at the Environmental Systems Research Institute (ESRI) Users Conference, San Diego, CA, July 1999.

Bacastow, Todd and Joy Drohan (1998). *PaMAGIC: A Recipe for Revolution in Pennsylvania*, Environmental Systems Research Institute (ESRI) Users Conference, San Diego, July 1998.

Bacastow, Todd (1994). *Geographic Information Systems in Small Government*, Pennsylvania Association of Township Supervisors, Hershey, PA, September 1994.

Grubbs, John H. and Todd S. Bacastow (1993). *Geographic Information in the Decision Process*, Association of the American Geographer, Atlanta, GA, April 1993.

Bacastow, Todd (1988). *A Future Vision for USAREUR Topographic Engineering*, North Atlantic Treaty Organization, Maastricht, Netherlands, April 1988.

Bacastow, Todd (1986). *MICROFIX Topographic Workstation*, Workshop on Geographic Information Systems in Government, Springfield, VA, April 1986.

COURSES DEVELOPED AND/OR TAUGHT

Courses Developed and Taught

Special Topic: Comparative Geospatial Intelligence Communities, Geography 597, The Pennsylvania State University, Summer 2017.

Seminar in Geospatial Intelligence, Geography 594A, The Pennsylvania State University, Fall 2008, Spring 2009, Summer 2009, Fall 2009, Spring 2010, Summer 2010, Fall 2010, Spring 2011, Summer 2011, Fall 2011, Spring 2012, Summer 2012, Fall 2012, Spring 2013, Summer 2013, Fall 2013, Spring 2014, Summer 2014, Fall 2014, Spring 2015, Summer 2015, Fall 2015, Spring 2016, Summer 2016, Fall 2016, Spring 2017.

Seminar in Geospatial Intelligence, Geography 594B, The Pennsylvania State University, Fall 2008, Spring 2009, Summer 2009, Fall 2009, Spring 2010, Summer 2010, Fall 2010, Spring 2011, Summer 2011, Fall 2011, Spring 2012, Summer 2012, Fall 2012, Spring 2013, Summer 2013, Fall 2013, Spring 2014, Summer 2014, Fall 2014, Spring 2015, Summer 2015, Fall 2015, Spring 2016, Summer 2016, Fall 2016, Spring 2017.

First Year Seminar, College of Earth and Mineral Sciences, Earth and Mineral Sciences 100S (GWS) First-Year Seminar, Fall 2015, Fall 2015, Fall 2017.

Advanced Analytic Methods for the Geospatial Intelligence Professional, Geography 885, The Pennsylvania State University, Fall 2009, Spring 2009, Summer 2009, Fall 2010, Spring 2010, Summer 2010, Fall 2011, Spring 2011, Summer 2011, Fall 2012, Spring 2012, Summer 2012, Fall 2013, Spring 2013, Summer 2013.

Spatial Systems Analysis and Design, Geography 583, The Pennsylvania State University, Fall 2003, Spring 2003, Summer 2003, Fall 2004, Spring 2004, Summer 2004, Fall 2005, Spring

2005, Summer 2005, Fall 2006, Spring 2006, Summer 2006, Fall 2008, Spring 2008, Summer 2008.

Geographic Information Systems Design and Evaluation, Geography 468, The Pennsylvania State University, Spring 2009 and Spring 2010.

First Year Seminar, College of Information Science and Technology, The Pennsylvania State University, PSU 017, Fall 2005, Spring 2006.

Relational Database Design, IST 210, The Pennsylvania State University, Fall 2000, Spring 2001, Fall 2001, Spring 2002, Spring 2003, Spring 2004, Fall 2006.

GIS Seminar, Geography 496, The Pennsylvania State University World Campus, Spring and Fall 2002, Spring and Fall 2003.

Spatial Analysis, Geography 464, The Pennsylvania State University, Fall 1994, Spring 1995.

Geographic Information Systems, Geography 363, The Pennsylvania State University, Fall 1993, Spring 1994, Fall 2000, Spring 2001.

Geographic Information Systems, U.S. Military Academy, Fall 1991, Spring 1992, Fall 1992, Spring 1993, Fall 1993, Spring 1994.

Remote Sensing, U.S. Military Academy, Fall 1993, Spring 1994.

Introductory Physical Geography, U.S. Military Academy, Fall 1983, Spring 1984, Fall 1984, Spring 1985, Fall 1985, Spring 1896, Fall 1991, Spring 1992, Fall 1992, Spring 1993, Fall 1993, Spring 1994.

Courses Taught

Intelligence Analysis, Cultural Geography, and Homeland Security, Geography 571, The Pennsylvania State University, Spring 2017.

GIS Database Development, Geography 484, The Pennsylvania State University, Fall 2016.

STUDENT MASTERS THESES OR PAPERS SUPERVISED

Stangl, Andrew (MGIS) Site Suitability Analysis for the V-2 Missile in the Second World War (April 2017).

Klein, Robert (MGIS) (Proprietary Topic) (January 2017).

Powers, Jalayne (MGIS) Characterization of Depleted Uranium at Nellis Training and Test Range Target 63-10 (October 2016).

Stofan, Kevin (MGIS) Estimating the Population of Rural Afghanistan (December 2011).

Reichman, Jeffery (MGIS) Linear Analysis Supported by Geographic Information System (GIS) (March 2011).

Tadlock, Luttrell (MGIS), *Distributing Geographic Information to Emergency Services in a Rural Locality* (May 2011).

Wing, Eric (MGIS), *Leveraging Linear Referencing to Map Sewer Events from CCTV Logs* (September 2010).

Potts, Stephanie (MGIS), *Forecasting Repeat Burglaries in Washington, D.C.* (April 2010).

Pekar, Chris (MGIS), *Landscape Modeling for Blue Wing Teal in the Sheboygan River* (July 2010).

Ose, Susan (MGIS), *Using the Churchman/Ackoff Method to Weight Layers for GIS Models* (June 2008).

Ludwig, Joseph (MGIS) *Developing a Spatial Hazard Index Methodology Using ModelBuilder* (February 2009)

Gould, Jessica (MGIS), *Increasing the Efficiency of and Adding Value to the CH2M Hill Enterprise by Improving Access to Publicly Available Geospatial Data* (June 2008).

Gutmann, Mark (MGIS), *Demonstrating the Benefits of Spatial Data Infrastructure: Guidance for Managers*, (December 2008).

Campbell, Andrew (MGIS), *Predicting Aircraft/Bird Collisions* (2007).

Mutch, Erin (MGIS), *GIS Design for Small Government* (2007).

Cakir, Recep, Thesis (Ph.D.), *GIS-based Earthquake Microzonation* (2005).

Walrath, David, Thesis (M.S.), *Multiscale Analysis of Avian Distributions in Pennsylvania* (2000).

Baxter, Ryan, Thesis (M.S.), *A methodology for the design and implementation of a geographic information system using collaborative systems* (1999).

INTERCOLLEGE PROFESSIONAL MASTERS OF HOMELAND SECURITY

Supervised over 90 student masters-level capstone projects, 2011 - 2017 (See Appendix A).

FUNDED RESEARCH GRANTS AND COOPERATIVE RESEARCH AGREEMENTS

Bacastow, Todd (2015). *Improving the Teaching of Geospatial Analysis, Cooperative Research and Development Agreement with the National Geospatial Intelligence Agency.*

Bacastow, Todd (2011). *Improving the Teaching of Geospatial Analysis, Cooperative Research and Development Agreement with the National Geospatial Intelligence Agency.*

Bacastow, Todd (2010). *Geographic Information Technical Support (ENGR) to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$80,000.*

Bacastow, Todd (2010). *Natural Resources Management (INRMP) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$250,000.*

Bacastow, Todd (2010). Integrated Training Area Management (ITAM) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$200,000.

Bacastow, Todd (2010). Range Training Land Analysis (RTLA) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$78,000.

Bacastow, Todd (2010). Range Training Land Program (RTLTP) Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$25,000.

Bacastow, Todd (2009). Geographic Information Technical Support (ENGR) to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$80,000.

Bacastow, Todd (2009). Natural Resources Management (INRMP) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$450,000.

Bacastow, Todd (2009). Integrated Training Area Management (ITAM) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$200,000.

Bacastow, Todd (2009). Range Training Land Analysis (RTLA) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$78,000.

Bacastow, Todd (2009). Range Training Land Program (RTLTP) Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$25,000.

Bacastow, Todd and Douglas Miller (2008). Geographic Information Technical Support (ENGR) to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$80,224.

Bacastow, Todd and Douglas Miller (2008). Natural Resources Management (INRMP) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$524,099.

Bacastow, Todd and Douglas Miller (2008). Integrated Training Area Management (ITAM) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$202,801.

Bacastow, Todd and Douglas Miller (2008). Range Training Land Analysis (RTLA) Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$77,151.

Bacastow, Todd and Douglas Miller (2008). Range Training Land Program (RTLTP) Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$25,639.

Bacastow, Todd and Douglas Miller (2007). Geographic Information Technical Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$93,773.

Bacastow, Todd and Douglas Miller (2004-2007). Pennsylvania Map Program Management, awarded \$20,400,000.

Bacastow, Todd and Douglas Miller (2007). Technical Support for the Conversion of Engineering to a GIS Data Format to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$64,029.

Bacastow, Todd and Douglas Miller (2007). Natural Resources Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$235,585.

Bacastow, Todd and Douglas Miller (2007). Integrated Training Area Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$202,801.

Bacastow, Todd and Douglas Miller (2007). Range Training Land Analysis Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$49,363.

Bacastow, Todd and Douglas Miller (2007). Range Training Land Program Management Support to the Pennsylvania Department of Military and Veterans Affairs (DMVA) for Environmental Planning, awarded \$82,337.

Bacastow, Todd and Douglas Miller (2006). Geographic Information Systems Support for Environmental Management of Military Training Lands, Pennsylvania Department of Military and Veterans Affairs, \$832,000.

Bacastow, Todd and Douglas Miller (2003). Geographic Information Systems Support for Environmental Management of Military Training Lands, Pennsylvania Department of Military and Veterans Affairs, \$2.2 million.

Bacastow, Todd and Douglas Miller (2002). Sustainable Environmental Management of Military Lands. Assisting with the management of PA National Guard training lands and ranges. Supervised five fulltime off-site employees. \$3.3 million.

Bacastow, Todd (2002). Geospatial Information for Sustainable Development Initial Capability Pilot (GISD-ICP), (2002) OpenGIS Consortium (Cooperative work with ATS, Inc. Lancaster, PA), \$20,000.

Bacastow, Todd and Douglas Miller (2000). NASA Health-Environment Alliance, \$60,000.

Bacastow, Todd (2002). Geospatial One-Stop - User Requirements Definition, Federal Geographic Data Committee, \$25,000.

Bacastow, Todd (1996-2000). Pennsylvania Spatial Data Access Clearinghouse. Pennsylvania Geospatial Data Clearinghouse, \$1.2 million.

Bacastow, Todd (1996-1999). Integrated Training Area Management for the Pennsylvania Department of Military and Veteran's Affairs, \$100,000 per year.

Bacastow, Todd (1996-2000). National Spatial Data Infrastructure. Numerous grants totaling in excess of \$50,000.

Bacastow, Todd (1998-1999). GIS for Economic Development of Erie County, Pennsylvania. Pennsylvania Department of Environmental Protection, \$250,000.

Bacastow, Todd (1984-1986). MICROFIX Topographic Workstation United States Army Intelligence Center, \$500,000.

Bacastow, Todd (1991- 1994),. Advanced Geospatial System Development, Defense Mapping Agency. \$15,000 per year.

SERVICE AND ACHIEVEMENT

Co-chair (Chief of Staff) for a University-wide Committee chaired by the Vice President for Governmental Affairs. The major activity of the Committee was the planning and conduct of "Operation Game Day" which included 7,500 donated "Seats for Soldiers" football tickets and a free tailgate for 10,000 veterans (2012-2017).

Chair of the College of Earth and Mineral Sciences Fixed Term Faculty Advisory Committee (2016-2017).

Member of the College of Earth and Mineral Sciences Fixed Term Faculty Promotion Committee (2012-2015).

Academic Advisory Committee, United States Geospatial Intelligence Foundation, 2010-Present.

Penn State College of Earth and Mineral Sciences, G. Montgomery and Marion Mitchell Award for Innovative Teaching (2009).

Planning Committee, United States Geospatial Intelligence Foundation, GEOINT Symposium 2008-2014.

Awarded the Pennsylvania Meritorious Service Medal by the Governor of Pennsylvania for exemplary service to the Commonwealth of Pennsylvania, October 2006.

Prepared example mapping and Geographic Information Systems legislation for the Commonwealth of Pennsylvania, June 2005.

Organized a hearing on Geographic Information Policy and Homeland Security/Emergency Preparedness Informational (2003), Pennsylvania State House Veterans Affairs and Emergency Preparedness Committee, Harrisburg, Pennsylvania, May 2003.

Chair, Pennsylvania Geologic Mapping Advisory Committee, 2005 – 2010.

University Consortium for Geographic Information Sciences. Member of the University Consortium for Geographic Information Sciences' Model Curricula Advisory Board, 2005.

United States Geospatial Intelligence Foundation Geospatial Intelligence Academy. Curriculum advisory panel, 2005 – present.

Co-chair of the College of Earth and Mineral Sciences (EMS) United Way Campaign, 2000-2006.

College of Earth and Mineral Sciences Fixed Term and Research Faculty Advisory Committee, 2004-2005.

Chair, Council of Trustees, GeoData Alliance, 2001-2004.

Pennsylvania Spatial Data Standards Committee, 2001-2003.

Pennsylvania Map Implementation-Team, 2002.

Chair, Pennsylvania Geologic Mapping Advisory Committee, 2000-2010.

Chair, GIS Advisory Committee, Legislative Office for Research Liaison, 2000-2010.

Co-Chair, Pennsylvania GIS Conference, 1999-present.

President, Pennsylvania Mapping and Geographic Information Consortium, 1998-1999.

Trustee, Pennsylvania Mapping and Geographic Information Consortium, 1996-2002.

Chair, NATO Ad Hoc Working Group on GIS, 1987.