Nearly two dozen WVU faculty specialize in spatial statistics, spatial econometrics, and related research fields.

Christiadi, BBER (Ph.D. WVU, 2005): Demography, Regional Economic Impact Analysis & Migration, Discrete Choice Models

Jamison Conley, Geography and Geology (Ph.D. PSU, 2008): Cluster Analysis, Geocomputation, Spatial Analysis of Disease


Greg Elmus, Geology and Geography (Ph.D. PSU, 1979): GIS, Spatial Analysis of Crime


Tesfa Gobremedhin, Ag Res Econ (Ph.D. Ok. State U, 1981): Regional, Rural, and Community Growth and Development

Hodjat Ghadimi, Design and Landscape Arch (Ph.D. OSU, 1993): Sustainable Dev, CEE modeling, Econ of Creativity and Innovation

Trevor M. Harris, Geology and Geography (Ph.D. Univ of Hull, UK, 1982): GIS, Virtual GIS, Virtual Reality, ESRA, GIS and Archeology

Randall W. Jackson, Geology and Geography, RRI (Ph.D. Illinois, 1983): Economic Geography, Regional Economic Development

Peter Jarozi, RRI (Ph.D. University of Pecs, 2011): Spatial Modeling, Object-Oriented Modeling, Spatial CGE


Brenden E. McNeil, Geology and Geography (Ph.D. Syracuse, 2006): Environmental GIS Modeling, Landscape and Ecosystem Ecology


Amanda Ross, Economics (Ph.D. Syracuse, 2011): Urban Economics, Public Finance, Real Estate Economics


Heather M. Stephens, Resource Economics (Ph.D. The Ohio State University, 2012): Energy Economics, Environmental & Regional Economics


Timothy Warner, Geology and Geography (Ph.D. Purdue, 1992): Remote Sensing, High Spatial Resolution Image Analysis

West Virginia University offers a wide range of courses related to spatial statistics, spatial econometrics, and regional economic analysis.

Davis College of Agriculture, Natural Resources and Design

Agricultural and Resource Economics

703 Advanced Natural Resource Economic Theory
710 Advanced Environmental Economics
793 Spatial Econometrics (Ph.D. Level)

Resource Management

440 Foundations of Applied GIS
442 Applied GIS - Natural Science
441 Applied GIS - Social Science
443 GIS Use and Applications
575 Advanced Spatial Analysis
640 GIS for Aquatic Resource Management

Forestry

326 Remote Sensing of the Environment
443 GIS Use and Applications

Recreation, Parks, and Tourism Resources

570 Meanings of Place

Eberly College of Arts and Sciences

Geography

452 Geographical Information Science: Applications
453 GIS: Design and Implementation
454 Environmental GIS
455 Introduction to Remote Sensing
456 Remote Sensing Applications
462 Digital Cartography
494 Geovisualization and the CAVE
530 Geographic Information Science
594 Geographical Data Analysis
595 Geographical Information Systems: Technical Issues
654 Environmental GIS Modeling
655 Remote Sensing Principles
694 Advanced Immersive Geography
701 Advanced Research Methods
752 Advanced Geographic Information Science
753 Exploratory Spatial Data Analysis
755 Advanced Remote Sensing

Business and Economics

Economics

761 Advanced Regional Economics
762 Advanced Urban Economics

For additional information about the programs offered and opportunities for students and faculty, please contact:

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Fax: 304-293-6699
Email: Randall.Jackson@mail.wvu.edu
Website: www.rri.wvu.edu

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Spatial Science Methods are increasingly prominent in economics, geography, planning, regional science, political science, health sciences, and beyond. Spatial statistical and econometric techniques are shedding new light on today’s most important public and private sector policy issues. Through the coordinated efforts of a diverse faculty, West Virginia University (WVU) has emerged as a leader in theoretical and applied spatial statistics and econometrics. Our faculty and students are conducting path-breaking research in this rapidly advancing field. We offer classes, workshops, and individual collaboration with scholars on campus and around the world.

Faculty expertise in geographical information science and applied GIS, spatial statistics, and spatial econometrics is disseminated through formal graduate-level instruction, in workshops, through working papers and other materials on the Regional Research Institute (RRI) website, and through collaborations with international scholars. Graduate students across campus are using spatial statistics and spatial econometrics in their doctoral dissertations, creating a new generation of scholars using spatial analytic techniques to bring new insight into many of the most critical of today’s research questions.

Regional Economic Analysis at WVU

Much of the regional economic analysis at WVU takes place in the RRI and the Bureau of Business and Economic Research. Regional research at WVU has received external support from agencies such as the National Science Foundation, the Economic Development Administration, the U.S. Departments of Agriculture, Energy, Defense and Justice, the State of West Virginia, the U.S. Small Business Administration, the U.S. IRS, and the Appalachian Regional Commission.

Recent RRI research topics include studies of sustainable urban systems emphasizing the role of recycling and remanufacturing; childhood obesity and local food neighborhoods; the energy rich regions of WV and Shanxi Province, China; business incubator performance in rural regions; the impacts of 50 years of Appalachian Regional Commission investments; implications of the introduction of woody biomass processing in southern WV; and the regional and national impacts of the introduction of new energy technologies.

The Regional Research Institute

The RRI is the only university-wide center for the advancement of social science research at WVU, and since 1965 has been an internationally recognized center for the regional science research. The RRI coordinates interdisciplinary research proposals and projects, sponsors scholarly seminars and workshops, and publishes the Web Book of Regional Science, used worldwide by instructors and professionals alike. The RRI brings together faculty and students with regional and spatial analytical interests to engage in interdisciplinary research. Visitors to the RRI include some of the world’s most distinguished regional and spatial scientists.

Spatial Econometrics at WVU

Spatial econometrics is a subfield of econometrics that incorporates geographic space in regression models for cross-sectional and panel data. Spatial econometric techniques are increasingly being used in many areas of research, and WVU is rapidly becoming one of the leading institutions in applied and theoretical spatial econometric research.

The RRI is one of a few select research centers that has expertise in the field of spatial econometrics. WVU offers courses in spatial statistics and spatial econometrics at the Master’s and Ph.D. levels.

The RRI offers summer spatial econometrics workshops annually suitable for graduate students, faculty, and practicing professionals interested in using these techniques in their own work. The summer workshop typically comprises the following two courses:

- Introduction to Spatial Econometrics
- Introduction to Bayesian Inference in Spatial Econometrics

The courses are taught by Donald Lacombe, a leading researcher in spatial econometric techniques. In these summer workshops, participants are exposed to both theoretical and practical aspects of spatial econometric modeling using various software packages.

Details regarding the summer workshops will be available on the RRI website (http://www.rri.wvu.edu).

Geographic Information Science

WVU has strengths in both theoretical and applied Geographic Information Science (GISc). The Department of Geology and Geography has five specialized labs for GISc research and teaching and maintains a CAVE for 3D and visual immersive geography studies. The Geography program has five full-time Geography program faculty members with a focus on GISc, including geocomputation, geovisualization, crime analysis, GISc and the humanities, environmental modeling and remote sensing. The Department also houses the West Virginia GIS Technical Center enhancing the State’s Spatial Data Infrastructure by providing GIS research and development to advance the State’s Spatial Data Infrastructure. Services provided include the State Data Clearinghouse, the MapWV.gov web mapping portal, and the Flood Hazard web-based Mapping tool. In cooperation with federal and state energy partners, Geology faculty and Technical Center staff work on mapping databases and modeling for locating unconventional fuels and potential carbon sequestration sites in oil, gas, and coal fields.

The Natural Resources Analysis Center (NRAC) is a multidisciplinary research and teaching facility in the Davis College of Agriculture, Natural Resources and Design that engages in pioneering research in GIS, Remote Sensing and Landscape Analysis. Led by faculty in Resource Management, NRAC has a strong focus on incorporating applied GIS into a wide range of research and teaching activities in support of the Davis College and the Land Grant mission of WVU. Research areas at NRAC include economic development and environmental sustainability, remote sensing, land cover mapping, landscape analyses, watershed and stream restoration modeling, analysis and applications, GIS-based planning and decision making, and the economic and environmental impacts of energy development and utilization. NRAC data development capabilities have included ground and aerial LiDAR as well as airborne video and high resolution photography. Infrared sensors use is under development. Recent projects include high resolution water resource GIS dataset development, parcel prioritization methodologies for land conservation and energy activities of joint interest to the US and China.