

MAJOR AREAS OF STUDY:

GIS AND REMOTE SENSING

GIS and Remote Sensing provide the basis for collecting and analyzing data concerning human and environmental patterns as they occur on Earth's surface. At Virginia Tech, students have the opportunity to apply these techniques to a variety of problems in environmental and human geography and to work in collaboration with faculty and students in several allied disciplines. Geography participates (with the Department of Forestry) in Virginia Tech's NASA-supported Center for Environmental Applications of Remote Sensing (CEARS), in the interdisciplinary Center for Geospatial Information Technology (CGIT), and in the development of autonomous vehicles, with the Department of Mechanical Engineering.

Recent Theses:

- Beyond the Bezel: Utilizing Multiple Monitor High-Resolution Displays for Viewing Geospatial Data** (Candice Luebbering)
- A GIS-Based Viewshed Optimization Algorithm** (Ben Turko)
- Identifying Barriers and Least Cost Paths for Autonomous Vehicle Navigation Using Lidar Data** (Om Poudel)
- Application of Spectral Change Detection Techniques to Identify Forest Harvesting Using Landsat TM** (Sam Chambers)
- Application of Ancillary Data In Post Classification To Improve Forest Area Estimates In A Landsat TM Scene** (Brent Holoviak)

MEDICAL GEOGRAPHY

Medical geography applies concepts of location, and knowledge of individual and societal behavior to investigate patterns of health and disease. Why do different diseases selectively affect certain populations? How can medical facilities be located to most efficiently serve specific populations? How are occurrences of disease related to environmental patterns? How do public policy decisions influence patterns of disease and health? Where do "new" diseases originate, and how do they spread from one place to another? At Virginia Tech, an experienced, interdisciplinary faculty can prepare students to examine these and related issues by applying the perspective of medical geography and the tools of geographic analysis, including geospatial techniques.

Recent Theses:

- Chagas Disease in the United States: The emerging threat and the role climate and awareness play in its spread** (Rebecca Click Lambert)
- The Asian Tiger Mosquito (*Aedes albopictus*): Spatial, Ecological, & Human Implications in Southeast Virginia** (Christopher William Ratigan)
- Local Realities and Structural Constraints of Agricultural Health: Pesticide Poisoning of Jamaican Small-Holders** (Tina C. Schlosser)
- The Implementation of Refugee Health Policies and Services in Virginia's Local Health Districts** (Stacy Boyer)

BIOGEOGRAPHY

Biogeography is the study of past and present geographic distributions of plants, animals, and other organisms, and often focuses on how humans influence these patterns. Students in our program will find opportunities to study biogeographic topics using a variety of field techniques, along with GIS and/or remote sensing, if desired. The department is especially well suited to support research in both paleoenvironmental studies and in contemporary vegetation analyses, and has a newly remodeled Biogeography Laboratory with

new Leica stereomicroscopes and image analysis capability. The department has strong ties with allied departments, including Forestry, Fisheries and Wildlife Sciences, Geoscience, and Biology.

Recent Theses:

- Paleoenvironmental Reconstruction of a Coastal Lagoon in Southwestern Dominican Republic** (Amos Desjardins)
- A Dendroecological Analysis of Vegetation Change and Climate History in Two Southern Appalachian Balds** (Christopher Crawford)
- A dendroecological analysis of disturbance of remnant *Pinus palustris*, southeastern Virginia** (Arvind Bhuta)
- Influences of Spatial Variability of Gall Midge Incidence in Jamaican Hot Pepper Production** (Ryan Williams)

DEVELOPMENT IN GLOBAL PERSPECTIVE

Why does affluence expand in one region while unyielding poverty persists in another, and what, if anything can and should be done to address such differences? Studies in Geography serve to link the social sciences and humanities with biophysical sciences, enabling students to acquire knowledge of forces that drive the global economy, that produce and resolve conflicts around the world, and that determine the interrelationships between development, society, human health, and the environment.

At Virginia Tech, experienced Geography faculty bring knowledge to the classroom from many years of overseas experience in the field, in basic research, and as consultants to governments, international organizations, and universities abroad. Faculty provide expertise in several regions of the world, but especially in the Caribbean and Latin America. Major areas of faculty interest include peasantries, agrarian change, political ecology, environmental degradation, urbanization, tourism, and historical preservation.

Recent Theses:

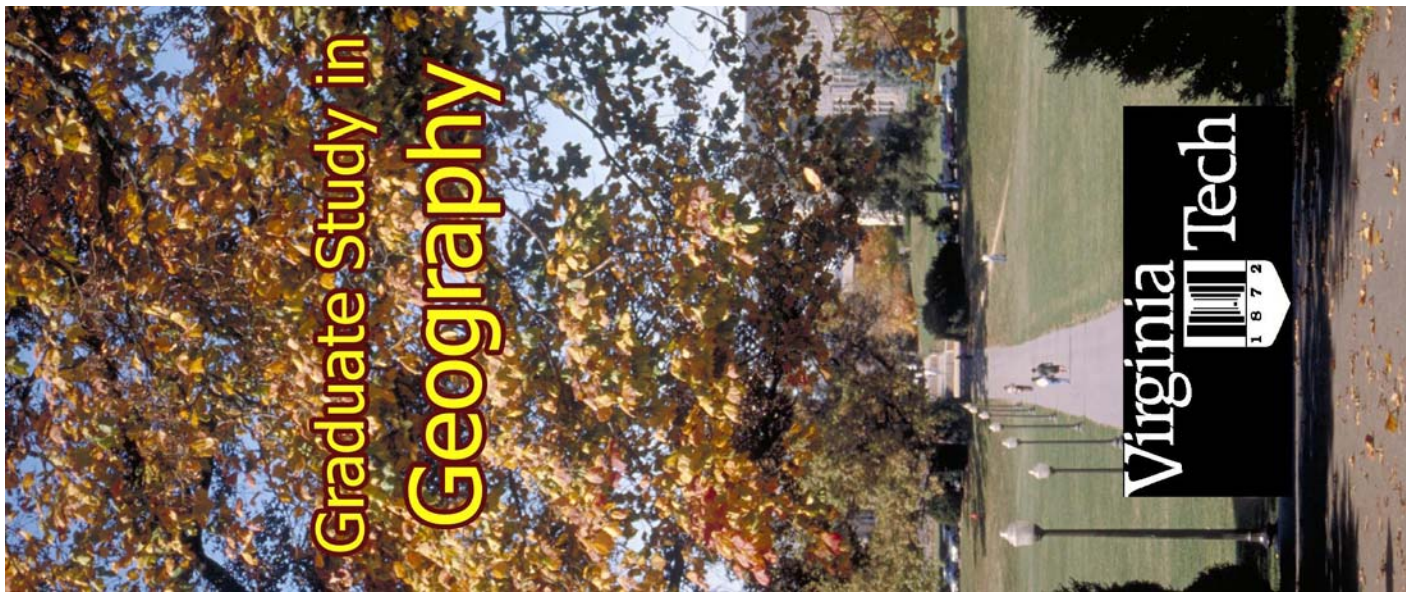
- Gendered Production Roles and Integrated Pest Management in Three Jamaican Farming Communities** (Gary L. Schlosser)
- The Political Ecology of Nontraditional Agricultural Exports and an IPM Project in Jamaica.** (Karen Patterson).
- "The Trawler Wreck All": Political Ecology and a Belizean Village.** (James Crawford).
- Water is More Important than Gold: Local Impacts and Perceptions of the 1995 Omai Cyanide Spill, Essequibo River, Guyana** (Candice Ramessar)

PLACE, REGION, AND PERCEPTION

Research under this theme encompasses a variety of topics associated with the nature and perception of spatial patterns. Key issues include the significance of regional differences, contrasts and linkages between rural and urban areas, and factors affecting the perception of places.

Recent Theses:

- The Geography of Community Bands in Virginia** (Sara Beth Keough)
- Place Perception, Cognitive Maps, and Mass Media: The Interrelationship Between Visual Popular Culture and Regional Mental Mapping** (Jason L. Roberts)
- Profile Analysis of Regional Variation among Virginia Winery Visitors** (Christopher Blaine Adams)
- Geographic Literacy among College Students** (Jodi Winship)



PROGRAM

Our department offers a program leading to the Master of Science degree in Geography. The curriculum prepares students for a variety of careers in business, government, research, planning, and teaching or for entry into doctoral programs at other universities. The M.S. degree requires a minimum of 30 semester hours of credit. These include two core courses: Geographic Theory and Research and a choice among several theory and technical courses. Thesis and non-thesis options are available. Students normally expect to complete their degree program in four semesters.

LOCATION

Virginia Polytechnic Institute and State University is located in Blacksburg (population: approximately 35,000) on a plateau situated between the Blue Ridge and Alleghany Mountains. This region is noted for its natural beauty, proximity to historic points of interest, and outdoor recreational opportunities. Our campus is 35 miles west of the Roanoke-Salem metropolitan region and is easily reached via Interstate 81 and US Route 460. Commercial airline service is provided through Roanoke. The University's southwest Virginia situation, adjacent to Appalachia and midway between Washington, DC and Atlanta, provides exceptional opportunities for the study of geographic issues in a wide variety of cultural and environmental settings.

FACILITIES AND RESOURCES

The University Library contains 1.9 million bound volumes, including an excellent collection of serial publications in geography and worldwide coverage of maps and atlases. Departmental computing and data facilities include 15 networked Pentium IV computers, all with T1 connections to the internet, 5 additional Pentium IV computers for graduate use only, a large format scanner, desktop raster and slide scanning equipment. Software includes the complete suite of GIS software from ESRI including ArcGIS 9.2, Idrisi Andes, Erdas Imagine, ENVI, statistical processing software. The biogeography laboratory provides Leica stereomicroscopes for examination of pollen, charcoal, and other minute organic particles.

ELIGIBILITY

The graduate program is open to qualified students holding Bachelor's degrees from accredited colleges. Requirements include a B average in junior and senior years (3.0 / 4.0), and satisfactory GRE and, if a non-native speaker, TOEFL scores. Each incoming graduate student's background and interests will be considered in developing individual programs and course requirements.

FINACIAL AID

Graduate Assistantships (GTAs) are available on a competitive basis. Students awarded assistantships receive a stipend and a tuition waiver. Please inquire to determine current rates for stipends. Research assistantships are also available but vary in number and amount of support from one year to the next. Scholarships are also available from the Department's Sidman P. Poole Endowment.

FACULTY

John D. Boyer, *M.S., Virginia Tech, 1998, Instructor--*world regions, viticulture, geography of alcohol

James B. Campbell, *Ph.D., Kansas, 1976, Professor--*remote sensing, soils & geomorphology, quantitative methods

Laurence W. Carstensen, *Ph.D., North Carolina, 1981, Professor--*geographic information systems, cartography, wireless telecommunications modeling, navigation modeling

Kirsten de Beurs, *PhD. Nebraska, 2005, Assistant professor -* remote sensing, time series analysis, phenology

Lawrence S. Grossman, *Ph.D., Australian National University, 1979, Professor and Head--*Caribbean, Third World development, political ecology, colonial environmental history

Lisa M. Kennedy, *Ph.D., Tennessee, 2003, Assistant Professor--*biogeography, Quaternary paleoenvironments, physical geography

Korine Kolivras, *Ph.D., Arizona, 2004, Assistant Professor--*medical geography, epidemiology, quantitative methods, GIS

Lynn Resler, *Ph.D., Texas State, 2004, Assistant Professor--*biogeography, geomorphology, mountain environments, remote sensing.

ASSOCIATED FACULTY

Carolyn Copenheaver, *Ph.D., Pennsylvania State University, 2000, Associate Professor, Forestry--*forest ecology, dendrochronology, land-use history

Randal L. Dymond, *Ph.D. Pennsylvania State University, 1987, Associate Professor, Civil and Environmental Engineering--*sustainable land development, urban storm water, land development, GIS

A.L. Tom Hammett, *Ph.D., Georgia, 1991, Associate Professor, Wood Science--*international trade, non-timber forest products, marketing

Stephen Prisley, *Ph.D., Virginia Tech, 1989, Associate Professor, Forestry--*GIS, quantitative and spatial analyses of forest resources, resource planning

Randolph Wynne, *Ph.D., Wisconsin-Madison, 1995, Professor, Forestry--*remote sensing, ecological modeling, natural resource management

FOR FURTHER INFORMATION CONTACT®

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