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*For information on GIS education, outreach, and research at Penn State, and GIS-related employment opportunities and events, please visit our Web site at **WWW.GIS.PSU.EDU***



**GIS at Penn State**

# The Geospatial Information Systems (GIS) Council



**This publication is available in alternative media on request.**

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THE MISSION OF THE GIS COUNCIL AT PENN STATE IS TO:

- FACILITATE GIS-RELATED ACTIVITIES
  - FACILITATE PREPARATION OF LARGE-SCALE PROPOSALS
  - INCREASE AWARENESS OF THE USE OF GIS
  - IDENTIFY THE PLACES WHERE EXPERTISE EXISTS
  - DEFINE OTHER GIS-RELATED ISSUES
- UNIVERSITY-WIDE

In spring 2001, Eva J. Pell, vice president for research and dean of the Graduate School at Penn State, created the GIS Council, composed of representatives from various Penn State campuses, research units, and colleges. A diverse set of GIS-related personnel and resources exist across the University, which faces many new challenges and opportunities in GIS instruction, outreach, and research.

Currently, Penn State has nine academic programs offering more than fifty GIS-related courses. There are more than 100 faculty involved in research using GIS-related technologies, and more than 100 grants that utilize these technologies, supported by twenty-five federal agencies as well as ten state and local agencies.

THESE ARE SOME HIGHLIGHTS OF GIS INVOLVEMENT AT PENN STATE, INCLUDING COMMENTS ON RESEARCH MISSIONS AND GIS USE IN INSTRUCTION, OUTREACH, AND RESEARCH.★

### **College of Agricultural Sciences**

Penn State's College of Agricultural Sciences is the sixth largest agricultural college in the nation and the largest in the Big Ten. A problem-oriented approach is taken, with various disciplines working together incorporating the use of remotely sensed data, aerial photography, and geographically referenced data. Research includes best management practices of air, land, and water resources, including crop production, animal and nutrient management, land-use planning, landscape ecology, and forest products.

### **College of Earth and Mineral Sciences**

The College of Earth and Mineral Sciences is world renowned in the area of geographic information science and its application to compelling issues. Research, education, and outreach activities in geographic information science are found in several units within the college. The GeoVISTA Center and the Department of Geography conduct innovative research in GIScience. The Earth and Environmental Systems Research Institute (EESI) houses the Center for Environmental Informatics (CEI), the Center for Integrated Regional Assessment (CIRA), and the Center for Sustainable Military Ranges (CSMR), all three of which apply GIScience to a variety of spatial problems.

### **College of Engineering**

Penn State's College of Engineering, established in 1896, has a long tradition as one of the country's leading educators of engineers. Research includes developing new computational techniques to improve storage and retrieval of geographic information; database management tools for maintaining voluminous datasets; and graphical and visualization techniques, including virtual reality, to effectively present information to the user.

### **College of Health and Human Development**

The College of Health and Human Development is engaged in a wide spectrum of health services research and is committed to improving the quality of life. Research includes spatial analysis of the availability of health care in rural areas, impact of national and state health care policies, managed care, cost containment strategies, provider and organizational behavior, the distribution of disease, and cause of death.

### **College of the Liberal Arts**

The college's research and teaching help to shape the future by studying past and present human populations, history, families, crime, language, and culture. Other research issues include: understanding the pressing issues of the digital age, the increasingly complex system of global politics and economies, and ethical dilemmas faced by professionals and citizens around the world. Research programs emphasize an interdisciplinary approach to developing spatial analyses of cultural and ecological data.

### **College of Medicine**

The Department of Health Evaluation Sciences in the College of Medicine is committed to enhancing the quality of life through improved health and the discovery of knowledge that will benefit all. Current research includes spatial analysis of air pollution levels and their health effects on the population, and the

association of stage-specific cancer incidence with the availability of health services. In addition, GIS was involved in the development of next-generation software to visualize and analyze spatiotemporal patterns in cancer data.

### **Penn State Harrisburg**

The Center for Geographic Information Services (CGIS) is a research and training unit of the Institute of State and Regional Affairs (ISRA) at Penn State Harrisburg, which provides support for research, education, and outreach efforts requiring the use and analysis of spatial information. In addition to GIS development, CGIS has coordinated, planned, and produced the annual Pennsylvania Geographic Information Systems Conference for more than a decade.

### **Penn State Wilkes-Barre (Commonwealth College)**

The Surveying program, in the College of Engineering, offers instruction in spatial data collection and analysis using photogrammetry, remote sensing, traditional surveying methods, and satellite positioning. The program incorporates the creation and use of Geographic Information Systems and their subsystems to develop strategies in solving societal problems and related spatial issues.

### **Penn State World Campus**

The University's World Campus enables adult learners worldwide to participate in degree and certificate programs via the World Wide Web. The Department of Geography's World Campus certificate program in GIS consists of four instructor-led online courses, each of which involves more than 100 hours of hands-on activities with authentic GIS software. Beginning in fall 2004, in collaboration with World Campus and the Dutton e-Education Institute, the Department of Geography will offer a complete online GIS master's degree program.

### **Applied Research Laboratory**

As a university center of excellence in naval science and technologies, with preeminence in undersea missions and related areas, the Applied Research Laboratory provides solutions to problems in national security, economic competitiveness, and quality of life. Research programs emphasize expertise and technologies, including inertial sensors and systems, passive navigation, bathymetric, gravity, magnetic navigation, terrain estimation, Global Positioning Systems, Geographic Information Systems, and navigational test vehicle operations.

### **Social Science Research Institute**

The institute's mission is to promote research encompassing a wide range of skills and perspectives needed to solve complex social problems. The Geographic Information Systems in the Social Sciences initiative is designed to facilitate the use of spatial analytical techniques and geospatial data in the social sciences. The unit supports research activities with services that include expert advice, programming and technical support, GIS fieldwork, and hard-copy and digital maps.

### **University Libraries**

The Penn State Maps Library houses an estimated 400,000 maps, including worldwide coverage of nautical and aeronautical charts, current and historical USGS topographic maps, topographic maps of foreign countries, thematic maps, and contemporary and historical atlases. The library also maintains a collection of digital cartographic materials, including raster and vector images, interactive atlases, and geographic data sets.

*★The information provided in this brochure is not all-inclusive to the departments engaged in GIS-related activities at Penn State.*