

## THE PENN GIS SYMPOSIUM

**ON PUBLIC HEALTH** is hosted by the Cartographic Modeling Lab (CML).

The CML is a joint venture of the University of Pennsylvania's School of Design and the School of Social Work, specializing in GIS and spatial analysis (<http://cml.upenn.edu>).

The CML has developed several online mapping applications, including the Neighborhood Information System (<http://cml.upenn.edu/nis>), that distribute administrative and survey data about housing, demographics and resources in neighborhoods. The CML is also involved in a wide range of funded research projects that study the role of the environment in public health, education, crime and social services.

# SPONSORS

Support for the Penn GIS Symposium on Public Health is provided by the following organizations.

As co-sponsors, these groups affirm their commitment to evolving uses of GIS in public health research and administration.

### ESRI

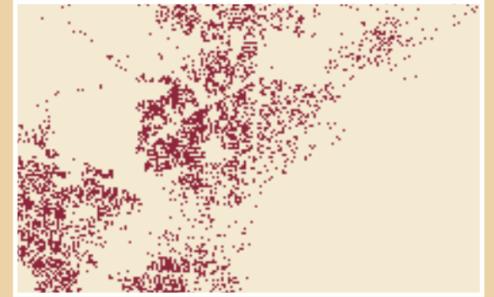
ESRI is the world leader in the GIS software industry, offering innovative mapping solutions that help people create, visualize, analyze and present information better and more clearly. ESRI's business involves the development and support of GIS software for all types of organizations, from the one-person office to multinational corporations to innovative Internet GIS solutions. For more information, please visit [www.esri.com](http://www.esri.com)

### Graduate Program in Public Health Studies

The Graduate Program in Public Health Studies (GPPHS) is a university-wide, graduate-level program that prepares students for leadership by integrating research, education and service learning in population health problems. The program aims to educate professionals from diverse disciplines in the core areas that define public health. GPPHS, which offers the Master of Public Health degree and other joint-degree programs, is a joint effort of Penn's Schools of Arts and Sciences, Dental Medicine, Education, Medicine, Nursing, Social Work, Veterinary Medicine, and the Wharton School of Business. For more information, visit [www.publichealth.med.upenn.edu](http://www.publichealth.med.upenn.edu)

### EXPORT Center of Excellence

EXPORT is an NIH-funded center involving a partnership between the University of Pennsylvania and Cheney University to study health disparities. Specifically, it is designed to simulate and support studies of environmental and behavioral strategies to improve eating patterns and physical activity as two fundamental aspects of lifestyle and long-term health. Shiriki Kumanyika, Ph.D., R.D., M.P.H. of the University of Pennsylvania, is the Principal Investigator and Jerry Johnson, M.D. of the University of Pennsylvania and Kenoyke Eke, Ph.D. of Cheney University of Pennsylvania are Co-Principal Investigators.



# OVERVIEW

Each day of the symposium offers informative forums, lectures, labs and activities that come together at the intersection of community interest, public health research and cutting-edge technology. Topics to be covered include data access and data collection, raster and vector data formats, spatial regression, and hot spot analysis. The symposium will include lectures by prominent public health and GIS researchers focused on both conceptual and methodological issues. A series of case studies will also be presented, showing how GIS is currently used in a range of public health projects. In addition, lab sessions will allow participants to collect and analyze real data using ESRI products **ArcView 8.3**, **ArcPad**, and **Spatial Analyst**.

On Tuesday evening, ESRI presents attendees the chance to see how GIS was used to create **MuralBase**, an interactive mapping application and database created by the Cartographic Modeling Lab (CML) using ESRI software products. **MuralBase** showcases hundreds of large-scale, stunning urban paintings that are a part of the Mural Arts Project. The evening will also include dinner and a trolley tour of Philadelphia's stunning murals.

For More Information Call 215.898.6493  
OR REGISTER ONLINE:  
[www.PennUrbanGIS.org](http://www.PennUrbanGIS.org)

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JUNE 21-23, 2004

# GIS SYMPOSIUM ON PUBLIC HEALTH

The Cartographic Modeling Lab and Penn's College of General Studies are proud to present the inaugural Penn GIS Symposium on Public Health, an intensive three-day workshop for administrators and researchers on the use of geographic information systems.





This unique symposium is designed as a practical introduction to the use of computer mapping and spatial analysis, policy analysis, and informed decision-making. Leading scholars and research professionals will discuss how they apply the latest GIS technology to understand how the environment impacts public health.

### Who Should Attend?

- Beginning to intermediate GIS users
- Public health researchers
- Public health administrators
- Civil/urban planners
- Policy-makers and scientists
- Graduate students

All are welcome and encouraged to actively participate in all facets of the workshop and take full advantage of this opportunity, as speakers and attendees come together to devise a framework to further understand, define and implement the use of GIS technology in public health. REGISTER ONLINE: [www.PennUrbanGIS.org](http://www.PennUrbanGIS.org)

### SUNDAY • JUNE 20

#### Introduction to ArcView GIS

(OPTIONAL)

Learn about the three components—ArcMap, ArcCatalog, and ArcToolbox—that make up ArcView 8 along with basic GIS techniques such as geocoding addresses, finding and integrating US Census data, joining attribute and spatial data, and symbolizing map layers. Workshop participants with no prior experience using ArcGIS are encouraged to attend, since ArcView will be used in the hands-on lab sessions. The fee for this optional lab is \$250.00.

### MONDAY • JUNE 21

MORNING LECTURE SESSION I

#### Health and the Environment

**KATHERINE KRAFT, MSW, PH.D.**

*Robert Wood Johnson Foundation*

Dr. Kraft will discuss Robert Wood Johnson's Active Living Program, aimed at identifying structural, environmental and policy changes that could increase levels of population physical activity, and the measurement tools being developed by program participants. Katherine Kraft is a senior program officer and co-leader of the Community Health Team. Her primary grant making is in the Foundation's Alcohol and Illegal Drugs and Health and Behavior program areas. She has developed programming to enhance substance abuse treatment for youthful offenders and national initiatives to increase physical activity levels through community design.

MORNING LECTURE SESSION II

#### Public Health Ecology & GIS

**DEBORAH COHEN, MD, M.P.H.**

*RAND*

Dr. Cohen will provide an overview of the structural ways in which the environment influences health behavior and outcomes and methods for measuring environmental factors. She will also describe her current research on community characteristics that impact the physical activity levels of adolescent girls. Dr. Cohen is a Senior Natural Scientist at RAND. Her interests are in primary prevention intervention research. She has worked in the areas of HIV/STDs, teenage pregnancy and substance abuse prevention. She is the author and co-author of several journal articles about public health, the environment, and GIS.

AFTERNOON LAB SESSION I

#### ArcPad

Learn how to use hand-held computers installed with ArcPad to collect data about the environment through survey and mock fieldwork in the University City area of Philadelphia.

AFTERNOON CASE STUDY SESSION II

#### Firearm Injury and Alcohol Outlets

**CHARLES BRANAS, PH.D.**

*University of Pennsylvania*

Dr. Branas will describe the use of traditional epidemiologic methods that have been enhanced with spatial analysis for the Philadelphia Gun and Alcohol Study (PGAS), funded by the National Institutes of Health. The PGAS aims to better understand the environmental precursors of gun violence in order to help community leaders reduce shootings in their neighborhoods. Dr. Branas' methodological interests combine aspects of health policy, operations research and epidemiology. His research interests include emergency health systems and injury prevention. This research most prominently includes an NIH-funded study of alcohol outlets and firearm violence in the city of Philadelphia. Dr. Branas' current research is also national in scope, including a multi-state study of trauma centers and ambulance care funded by the Agency for Healthcare Research and Quality. Dr. Branas is an Assistant Professor in the Department of Biostatistics and Epidemiology at the University of Pennsylvania. He is also a Senior Fellow at the Leonard Davis Institute for Health Economics and the lead epidemiologist at the Firearm Injury Center at Penn.

### TUESDAY • JUNE 22

MORNING LECTURE SESSION I

#### Representing the Environment with Administrative Data

**DENNIS CULHANE, PH.D.**

*University of Pennsylvania*

Dr. Culhane will describe the ways in which housing, human service and health data can be collected from municipal agencies and used to measure environmental conditions. His research has involved extensive use of large federal, state and municipal data sets to understand the determinants and effects of homelessness. As part of this work, Dr. Culhane has developed an ecological model of neighborhood risk factors for homelessness and property-level risk factors (fires, utility terminations) associated with shelter admissions. Under Dr. Culhane's leadership, the CML has developed several Web-based applications that give the agencies access to their own and other agencies' data using a map interface, and through a variety of other customized interfaces that include useful analytic functions for the agencies. Dr. Culhane is a Professor of Social Welfare Policy at the School of Social Work, Senior Research Associate at the Center for Population Studies, and Co-Director of the Cartographic Modeling Laboratory (CML) at Penn.

MORNING LECTURE SESSION II

#### Representing the Environment with Raster Data

**C. DANA TOMLIN, PH.D.**

*University of Pennsylvania*

Dr. Tomlin will describe the ways in which raster data, a GIS data format frequently used in the natural sciences, can be applied to public health research. Dr. Tomlin is Professor of Landscape Architecture and Co-Director of the Cartographic Modeling Laboratory at the University of Pennsylvania. His early work on cartographic modeling techniques laid the foundation for many of today's raster-oriented GIS packages, such as the Spatial Analyst extension to ArcGIS. Tomlin's current research focuses on the use of raster-based GIS in environmental planning. He teaches both introductory and advanced GIS courses at the University of Pennsylvania and Yale University.

AFTERNOON LAB SESSION I

#### Working with Raster Data Using Spatial Analyst

Learn how to transform vector data into raster data and use map algebra to combine and compare raster map layers using ArcView's Spatial Analyst extension.

AFTERNOON CASE STUDY SESSION II

#### West Nile Virus and GIS

**SIMI OCTANIA-POLE, PH.D.**

*NJ Department of Health and Senior Services*

New Jersey is among a handful of states that use an online GIS-based application for tracking the spread, reporting and surveillance of West Nile Virus (WNV). This application, developed by ESRI, is a centralized reporting system that greatly enhances efficiency and facilitates timely communication among the many stakeholders involved in combating and restricting the spread of the disease. Several state agencies, local health departments, and local mosquito control agencies work in coordination to provide effective surveillance. Information is disseminated using the online WNV/GIS application. Data on all avian, mosquito, equine and human cases are available in a central location and can be extracted and used for epidemiological studies. Dr. Octania-Pole is the WNV Coordinator for the State of New Jersey Department of Health and Senior Services' Infectious & Zoonotic Disease Program. She is responsible for the surveillance and reporting of WNV infection in NJ. She was formerly the GIS director for the Cartographic Modeling Lab at Penn.

For More Information Call 215.898.6493

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[www.PennUrbanGIS.org](http://www.PennUrbanGIS.org)

### WEDNESDAY • JUNE 23

MORNING LECTURE SESSION I

#### Spatial Data Analysis Methods

**TONY E. SMITH, PH.D.**

*University of Pennsylvania*

Dr. Smith will introduce exploratory spatial statistical methods, including hot spot analysis and spatial regression models, for analyzing point patterns and area (lattice) data. Dr. Smith is Professor of Systems Engineering and Regional Science at the University of Pennsylvania. His primary area of research is in the theory and application of probabilistic models to spatial interaction behavior. He has written numerous programs for analyzing point and area (polygon) data using Matlab, which he uses in his course on exploratory spatial data analysis techniques. He is currently working on two studies related to public health issues.

MORNING LAB SESSION II

#### Hot Spot Analysis and Spatial Regression with Matlab

Learn how to use some of the programs written by Tony Smith for Matlab, a statistical software package, to analyze point patterns for significant clustering and to build spatial weight matrices to conduct spatial regression. Learn also how to display the results of these tests in ArcView.

AFTERNOON CASE STUDY

#### Malaria Risk Profiles in the Brazilian Amazon

**MARCIA CASTRO, PH.D.**

*Princeton University*

Dr. Castro will investigate the temporal and spatial determinants of malaria transmission in settlement areas in the Brazilian Amazon, based on demographic, economic, ecological, ethnographic, social, and remotely sensed information. The proposed methodological approach in the research combines spatial analysis, geostatistical tools, and fuzzy set models. Dr. Castro's research focuses on the interrelationships between human migration, ecological transformation and malaria transmission on the Amazon frontier using GIS, remote sensing and spatial statistical analysis tools. She is currently working with Professor Burton Singer on the interplay between socioeconomic transformation, ecology and health on the Amazon frontier. Also, she is working on a project for urban malaria control in Tanzania. Dr. Castro is affiliated with both the Office of Population Research and the Center for Health and Well-being.



TUESDAY EVENING EVENT

#### CML Demo, Mural Arts Tour and Dinner

Penn's **CARTOGRAPHIC MODELING LAB (CML)** will demonstrate the interactive online database that allows users to search for a particular mural or learn the geography of Philadelphia's rich array of mural artists. A trolley tour will follow, allowing attendees to see a sampling of more than 2000 wall paintings throughout the nation's mural capital. Dinner will follow this personalized glimpse into the social, political and artistic worlds of Philadelphia. *This evening is made possible by the generous support of ESRI.*

# INFORMATION

## Registration

The course fee of \$1,200 includes attendance at all lectures, labs and case studies and continental breakfast and lunch, Monday through Wednesday, in addition to the overview of the CML, dinner and mural tour on Tuesday night. The optional *Introduction to ArcView GIS Lab* on Sunday is an additional \$250.

For more information call  
**215.898.6493**

Attendance is limited. Participants are registered on a first-come, first-served basis.

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## Continuing Education Units

One and a half Continuing Education Units (1.5 CEUs) are available for those who complete the workshop and attend all lectures, labs and case studies (a total of 15 hours).

## Lodging

Accommodations are available at the Sheraton University City, directly adjacent to Penn's campus and close to fine restaurants, museums and shopping. The recently renovated rooms offer oversized desks and Internet connectivity, and guests have access to an executive fitness center, a swimming pool, the Top Dog Sports Grille and an Enterprise Rent-A-Car agency.

If you are interested in reserving a room, please call 877.459.1146 and ask for the GIS and Public Health rate. For those who would like to spend additional time exploring Philadelphia, the special rate of \$139/night can be extended two days before or after the conference. Covered parking is available for Sheraton University City guests at a cost of \$15.00 per day, charged directly to your room bill.

Reservations must be made by May 15, 2004 to take advantage of this special rate.

[www.philadelphisheraton.com](http://www.philadelphisheraton.com)

Alternative, on-campus accommodations are also available on a limited basis. Call 215.898.3109 for more information.