

Adaptation and Implementation of an Undergraduate Spatial Analysis Curriculum for Social Science Majors

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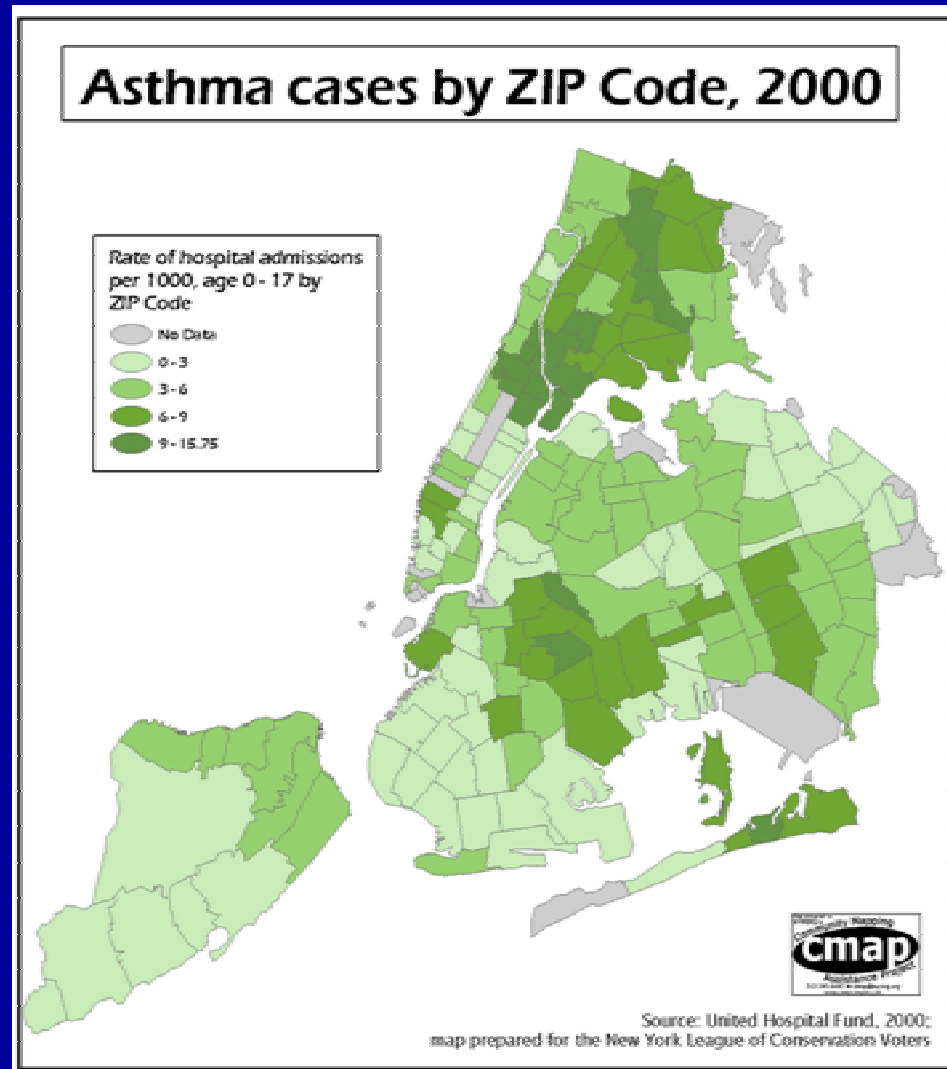
Quantitative Methods in the Social Sciences (QMSS)
Institute for Social and Economic Research and Policy (ISERP)
Columbia University

UCGIS - February 11, 2005

Recent Developments at Columbia University in GIS and Spatial Analysis

- Increased Institutional Commitment
 - Particularly a grant from University's Academic Quality Fund
- Growing Links Among Researchers Examining Spatial Issues
- Great Interest Among Students and Faculty
 - Partly driven by research on important local issues

Importance of Local Issues: Asthma Rates



Importance of Local Issues: Quality of Life



“Spillover Effects” of Efforts in Research

- Boom at Columbia in research that incorporates spatial analysis:
 - Examining how features of physical urban environment influence children’s activity levels and obesity
 - Analysis of location of non-profits who receive funds from NYC government
 - Spatial analysis of mortality in West Africa
 - Incarceration and voter participation rates in New York City
 - History of Garbage in NYC and effects on current health

Undergraduate Curriculum

- Next year we will implement two-sequence course in GIS/Spatial Analysis for students majoring in a social science.
 - Course One - focus on conceptual issues
 - Offered through Barnard College's Urban Studies Program.
 - Course Two - focus on methodological issues
 - Offered through Columbia's Sociology Department

Undergraduate Course One: Conceptual Issues in Spatial Analysis

- Offered through Barnard Urban Studies (required course for majors)
- Focus on developing understanding of the spatial organization of the social world
- Course comprised of discipline-specific modules
 - Can then offer these modules to other faculty

Undergraduate Course One: Conceptual Issues in Spatial Analysis

- Modules use existing studies on topic to establish theoretical grounding and review previous research (particularly limitations).
- Then use spatial analysis tools to extend findings in new directions.
- Modules on:
 - Legacy of Federal housing policy
 - Access to credit institutions
 - Political redistricting

Undergraduate Course Two: Methodological Issues in Spatial Analysis

- Offered through Columbia Sociology department
- Focus is on advancing technical skills and developing deeper understanding of statistical issues particular to spatial data
- Drawing heavily upon instructional materials and resources of NCGIA and SPACE

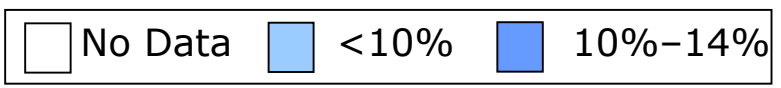
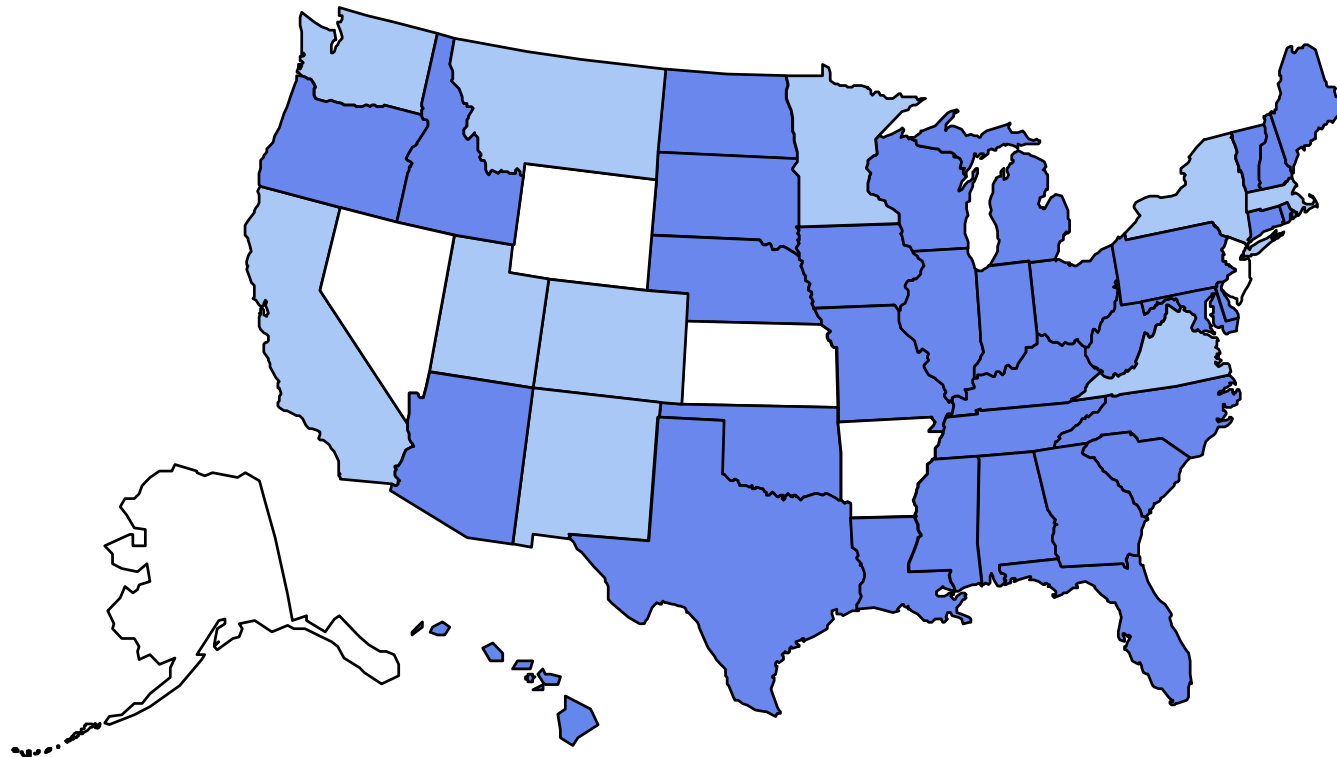
“Spillover Effects” of Efforts in Graduate Coursework

- Increasing number of courses offered to graduate students as well
 - Two course sequence in Urban Planning
 - Population and Land Use through SIPA
 - QMSS to offer course next fall
 - Plan to offer short courses for faculty

Obesity Trends* Among U.S. Adults

BRFSS, 1990

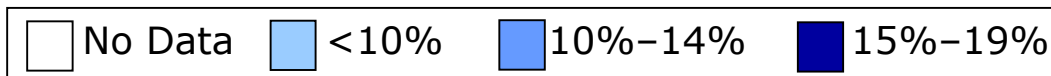
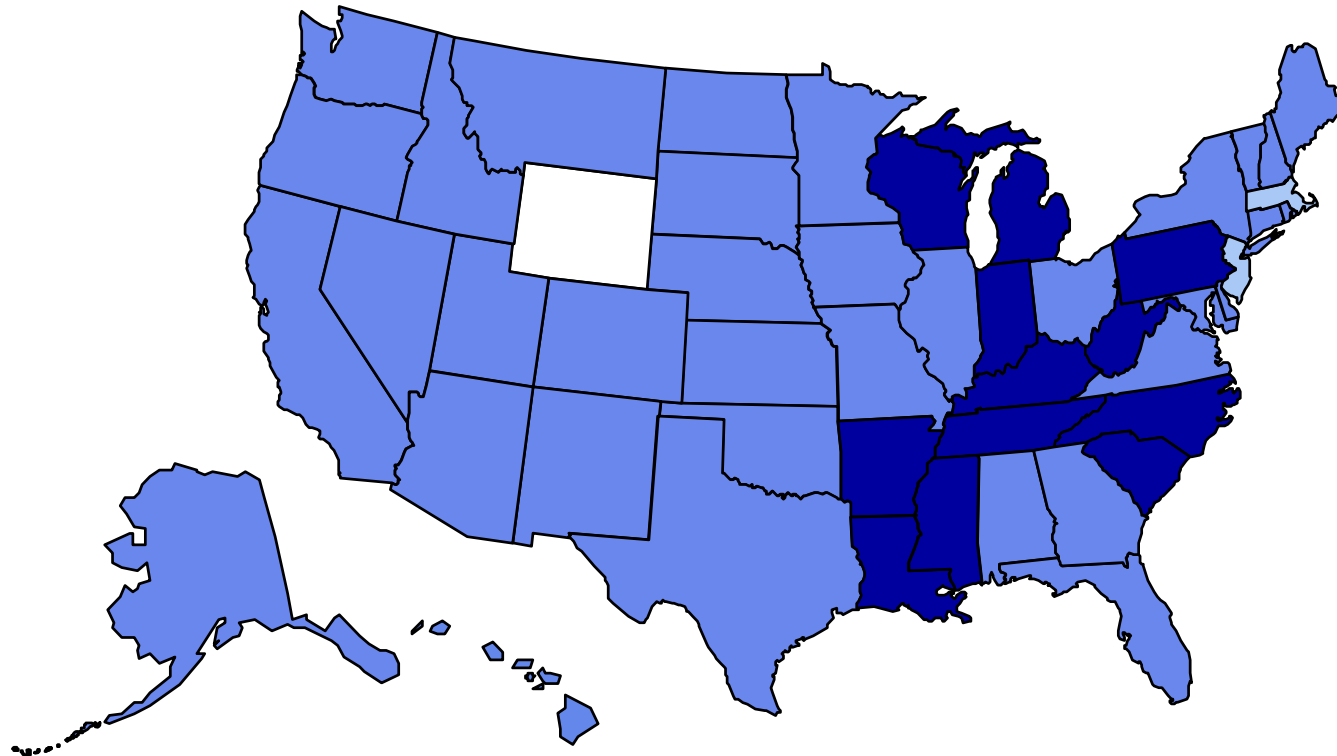
(*BMI ≥ 30 , or ~ 30 lbs overweight for 5' 4" woman)



Obesity Trends* Among U.S. Adults

BRFSS, 1993

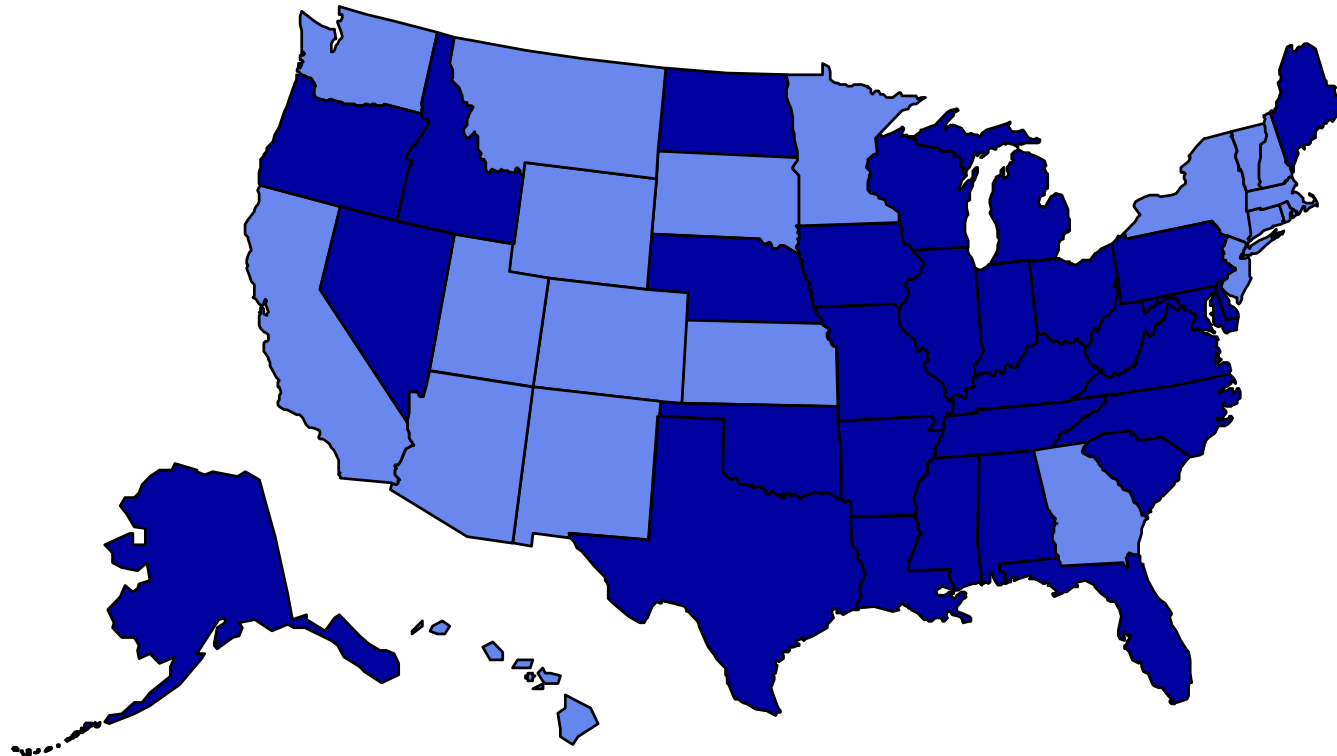
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Obesity Trends* Among U.S. Adults

BRFSS, 1996

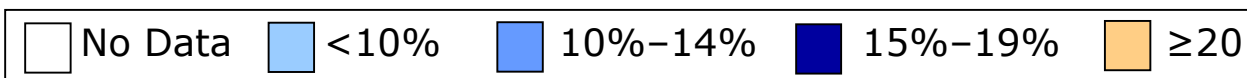
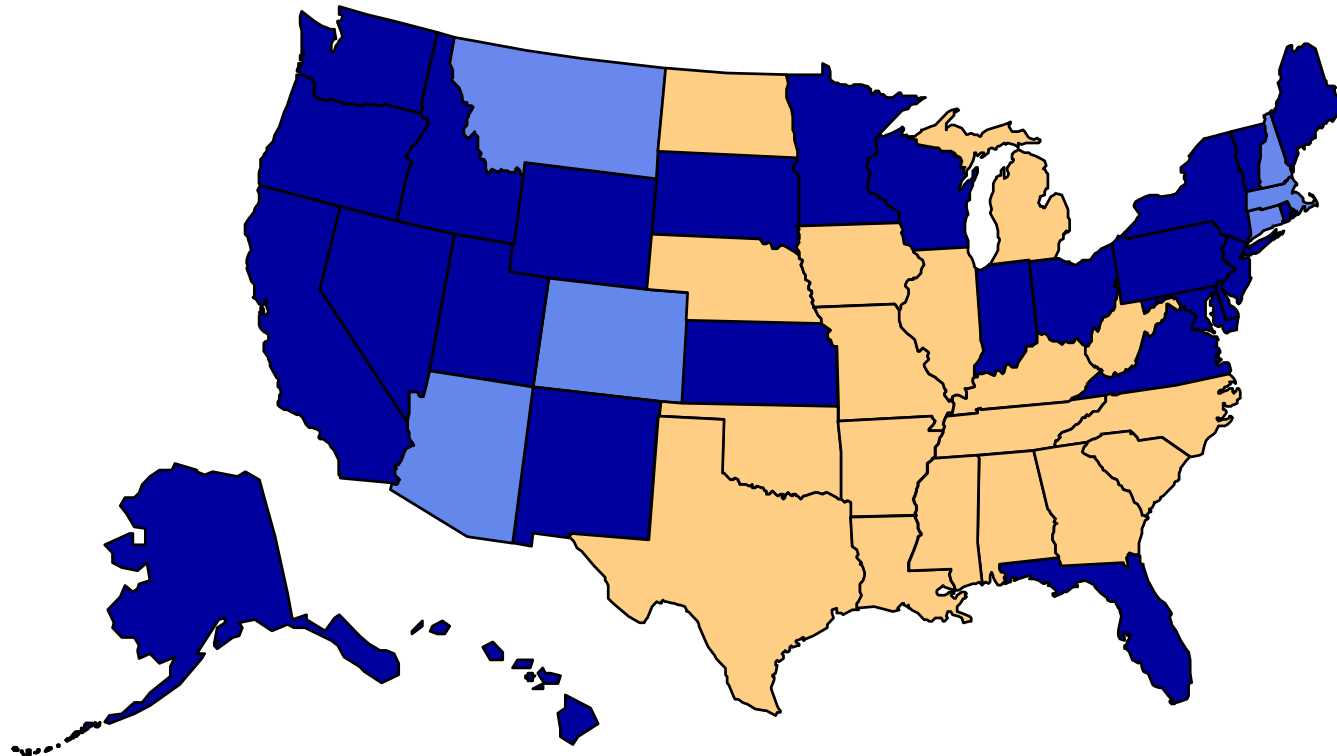
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Obesity Trends* Among U.S. Adults

BRFSS, 1999

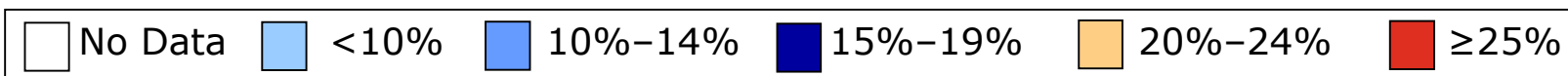
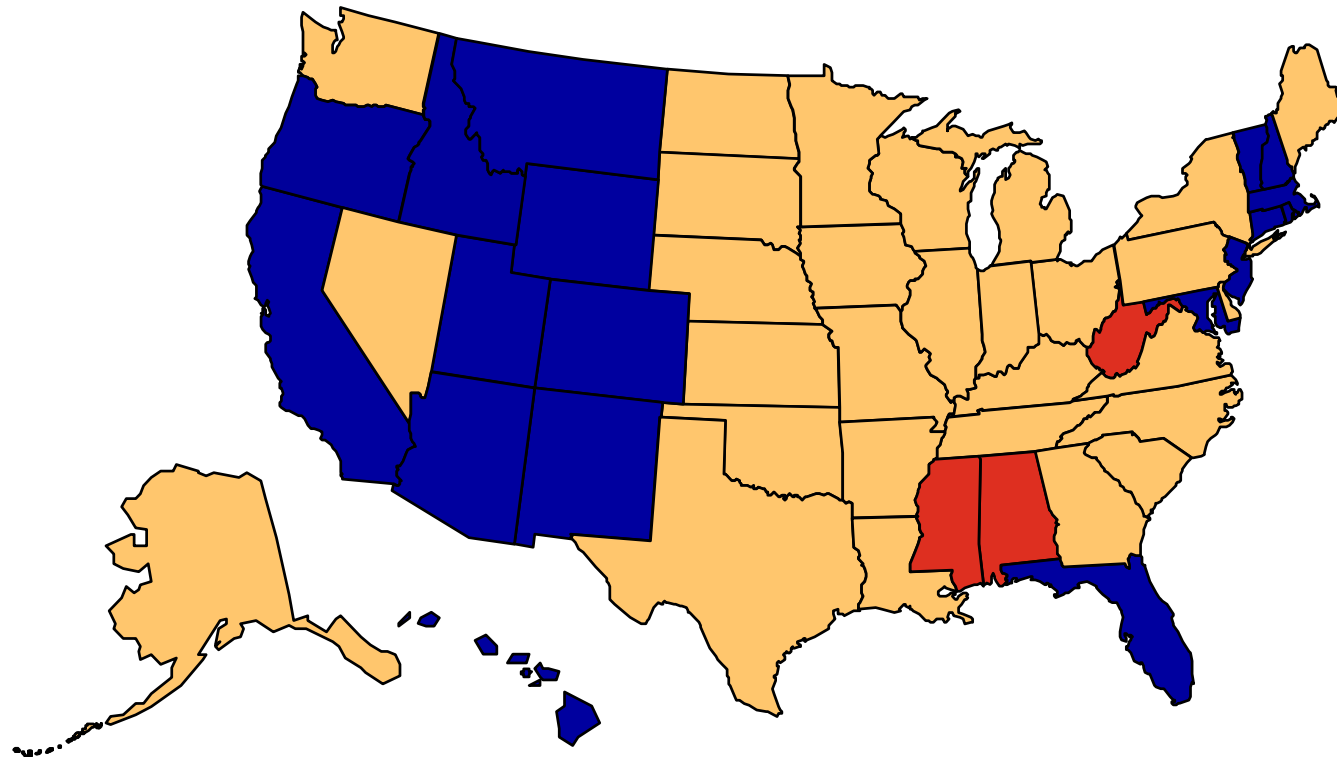
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Obesity Trends* Among U.S. Adults

BRFSS, 2002

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Source: Behavioral Risk Factor Surveillance System, CDC