Course Instructor: Dr. Paul Belanger
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Office: TBD
Contact Time: One two-hour lecture per week and one two-hour practicum per week
Format: Lectures and practicums
Class Assessment:
- Lab assignments + final project: 70%
- Mid-term examination: 30%

COURSE OVERVIEW
GIScience and Public Health reviews both the theory and application of geographic information science and systems in public health. Both the theoretical and practical components of the course are important. Absent a strong theoretical grasp of GIScience methods invites poor geographic modeling and decision-making. Applied training using relevant tools to explore and/or solve common business and research questions makes practical those theoretical and conceptual underpinnings. The practical component involves the use of desktop GIS software packages including ArcGIS and other spatial analysis software such as GWR, GeoDa, and SaTScan. In addition to shorter bi-weekly lab assignments, students will also complete a more in-depth, final project in which they will leverage GIScience and GIS to investigate a public health problem more rigorously.

LEARNING OUTCOMES
During the semester and upon course completion, students will:
- learn how to use GIS tools to identify spatial patterns in health and to undertake an exploratory analysis of potential explanatory factors;
- understand the issues and challenges involved in representing people, their health and potential explanatory factors as spatial objects in GIS;
- produce high quality, professional maps that communicate a variety of public health topics;
- implement a variety of common statistical and computational methods used to understand the geography of public health; and
- be able to discuss the relative roles of individual-level effects and area-level effects (or composition and context) in influencing patterns of health and the role that GIS can play in exploring these.

COURSE TOPICS
Review of fundamental GIScience and GIS concepts; mapping health outcome data; understanding spatial dependence and spatial structure in public health data; analyzing environmental hazards; analyzing spatial clusters; analyzing spatial risk and the spread of disease; analyzing access to and locating health services; and mapping health disparities.

COURSE READINGS
Course Text