Introduction to Spatial Analysis in Epidemiology

CLASS SESSIONS
Friday, June 9, 2017
1:30 – 5:30pm
Location: TBD
Directions can be found here: https://www.cuepissummer.org/contactpage

INSTRUCTOR
Rena Jones, PhD, MS
renajones@gmail.com

COURSE DESCRIPTION
Spatial analysis is increasingly being used with epidemiologic data to address the complex spatial nature of disease occurrence, risk factors, and exposure-disease relationships. This course will provide an overview of the application of spatial analysis in public health research. The topics covered include a beginner-level introduction to analytic approaches that integrate Geographic Information Systems (GIS) and other technology to enhance epidemiologic assessments. Concepts will be applied to multiple content areas in epidemiology with current examples of population health issues evaluated using spatial analytic approaches. This lecture-only course will provide the theoretical foundation necessary for learning applied spatial analysis in epidemiology.

PREREQUISITES
An introductory-level theoretical understanding of GIS and its applications in health research is preferred. Previous training in epidemiology, including observational study designs and key sources of bias is recommended. We recommend that participants have prior exposure to use of statistical software and descriptive statistics.

COURSE LEARNING OBJECTIVES
By the end of the course, students will be able to:

• Recognize and apply the terminology linking geographic concepts to epidemiology
• Understand the utility of spatial analysis in population health research
• Identify spatial analytic methods to address common epidemiologic study needs
• Apply learned methods to address public health questions
COURSE READINGS
The following papers are recommended:


COURSE STRUCTURE
Class time is 4 hours total. The course is entirely lecture-based.

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Course schedule</th>
<th>1:30 - 2:00pm</th>
<th>2:00 - 3:15pm</th>
<th>3:15 – 3:30pm</th>
<th>3:30 – 4:30pm</th>
<th>4:30 – 5:30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to spatial data, basic GIS concepts, &amp; spatial data visualization</td>
<td>Spatial clustering and hypothesis testing</td>
<td>Break</td>
<td>Spatial interpolation, imputation, and regression</td>
<td>Mapping, assessing, and interpreting spatial data</td>
<td></td>
</tr>
</tbody>
</table>