DRAFT SYLLABUS
Lehman College, City University of New York
Department of Earth, Environmental, and Geospatial Sciences
GEP 310: Geography of Urban Health / GEP 610/EES 79903: Spatial Analysis of Urban Health
Spring 2014

Course Description:
This course focuses on urban health issues using a geographical framework and covers topics such as the historical perspective of health, place, and society; mapping and measuring health and health impacts; the social and spatial patterning of health; the geography of health inequalities and disparities; health and social/spatial mobility; and the effects of urban segregation, overcrowding, and poverty on disease. Current research, as well as the seminal early works on the geographies of health, will be reviewed. Geographic Information Science will be used in the laboratory exercises to illustrate the theoretical concepts and to produce worked examples of health geography. 3 credits, 4 hours

Course Meets:
Gillet Hall, Room 322 (GISc Lab) Fridays, once per month, from 4:00 – 6:00 PM, dates as noted below

Instructors:
Profs. Juliana Maantay and Andrew Maroko

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Andrew.maroko@lehman.cuny.edu

Phones:
718 960-8574 (JAM)
718 960-1830 (ARM)

Office:
Gillet Hall, Room 325 (JAM)
Gillet Hall, Room 323 (ARM)

Office Hours:
Wednesdays, 2:00-4:00 PM and by appointment (JAM)
Tuesdays, 3:00-5:00 PM and by appointment (ARM)

Required Textbooks:
- All other chapters and papers will be provided in pdfs on Blackboard.
- Each week pertinent websites and blog postings will be provided on Blackboard for further background and introductory information to that week’s topic.

Learning Objectives (By the end of the course students will be expected to have):
- A thorough understanding of urban health issues and how to examine them through spatial analysis;
- Enhanced computer literacy, and the ability to conduct data exploration, geospatial analysis, and health mapping with GISc;
- Ability to interpret health data within an understandable GISc framework.
**In-Class Meeting, 4:00 – 6:00 PM, Friday, January 31st**

**Weekly Class Topics/Readings/Lab Exercises:**

[G] = Required reading for graduate students; Optional for undergraduates.

1. **History of health geography and the context of urban health – Part 1**
   **Readings:**

   **Lab Assignment:** No Lab

2. **History of health geography and the context of urban health – Part 2**
   **Readings:**

   **Lab Assignment A:** A re-examination of John Snow’s cholera map - NOW with MAUP!

3. **Exploring and measuring urban exposures/methods – Part 1: Proximity and containment**
   **Readings:**

   **Lab Assignment B:** Analyzing Exposure using Multiple Ring Buffers and Odds Ratios

   **Week 3 Written Assignment and Lab Assignment B due 3:00 PM, Wednesday, February 19th**
4. Exploring and measuring urban exposures/methods – Part 2: Exploratory Spatial Data Analysis – interpolation methods and land use regression modeling

Readings:

Lab Assignment C: Exploring Exposure and Environmental Justice using Interpolation

Week 4 Written Assignment due 3:00 PM, Wednesday, February 26th (No Lab due)

**In-Class Meeting, 4:00 – 6:00 PM, Friday, February 28th**

5. Issues of Equity: Environmental Justice and Health Disparities

Readings:
- Gatrell and Elliott, 2009. Geographies of Health, Chapter 4, Inequalities in Health Outcomes, pp. 87-123.

Lab Assignment: Lab C Continues - Exploring Exposure and Environmental Justice using Interpolation

Week 5 Written Assignment and Lab Assignment C due 3:00 PM, Wednesday, March 5th

6. Social and spatial patterning of health

Readings:

Lab Assignment D: GINI Index vs. Deprivation Index: Comparing Regional Differences in Health Outcomes

Week 6 Written Assignment and Lab Assignment D due 3:00 PM, Wednesday, March 12th
7. **Accessibility to the Benefits of the Urban Environment**

Readings:

**Lab Assignment E**: The Relationship between Health and Accessibility to Urban Parks using Network Analysis

**Week 7 Written Assignment and Lab Assignment E due 3:00 PM, Wednesday, March 19th**

8. **The Influence of Residential Segregation: Using Indices of Segregation**

Readings:

**Lab Assignment F**: Inter-Urban Comparison using Segregation Indices

**Week 8 Written Assignment due 3:00 PM, Wednesday, March 26th (No Lab Due)**

**In-Class Meeting 4:00 – 6:00 PM, Friday, March 28th**

9. **Physical and Social Vulnerabilities**

Readings:
Syllabus - GEP 310/GEP 610/EES 79903 Geography of Urban Health/Spatial Analysis of Urban Health


Lab Assignment: Lab F continues - Inter-Urban Comparison using Segregation Indices

*Week 9 Written Assignment and Lab Assignment F due 3:00 PM, Wednesday, April 2nd*

10. Social and environmental stressors and disease outcomes

Readings:


Lab Assignment G: Geographically Weighted Regression (GWR) Analysis: Effect of Vacant Land and Deprivation on Mental Health

*Week 10 Written Assignment and Lab Assignment G due 3:00 PM, Wednesday, April 9th*

*SPRING BREAK, APRIL 14-22*

11. Urban planning and health – “Designing Healthy Communities”

Readings:


Lab Assignment H: Exploring Potential Links between Land Use Mix and Neighborhood Health using Multivariate Mapping

*Week 11 Written Assignment and Lab Assignment H due 3:00 PM, Wednesday, April 23rd*
12. **Spread of Disease - Part 1: Spatial Diffusion, Clustering, and Spatio-temporal Analysis**

**Readings:**

**Lab Assignment I:** Cluster (“Hot Spot”) Analysis and Kernel Density Estimation (KDE) of Health Outcomes over Time.

**Week 12 Written Assignment due 3:00 PM, Wednesday, April 30th (No Lab Due)**

**In-Class Meeting, 4:00 – 6:00 PM, Friday, May 2nd**

13. **Spread of Disease - Part 2: Spatial Diffusion, Clustering, and Spatio-temporal Analysis**

**Readings:**

**Lab Assignment:** Lab I continues - Cluster (“Hot Spot”) Analysis and Kernel Density Estimation (KDE) of Health Outcomes over Time

**Week 13 Written Assignment and Lab Assignment I due 3:00 PM, Wednesday, May 7th**

14. **Analyzing Historical Health Data**

**Readings:**

Lab Assignment: No Lab

*Week 14 Written Assignment due 3:00 PM, Wednesday, May 14th (No Lab Due)*

**15. GIS Practical Exam** (in-class exam, during Final Exam Week)

**Friday, May 16th 4:00 – 6:00 PM**

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<tr>
<th>Grading:</th>
<th>Grade Scale:</th>
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<tbody>
<tr>
<td>Lab Assignments</td>
<td>A &gt;= 95</td>
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<tr>
<td>Written Assignments</td>
<td>A- 90-94</td>
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<td>Practical Exam</td>
<td>B+ 85-89</td>
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<td>Participation</td>
<td>B 80-84</td>
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**Assessment:**
Your understanding of the course material will be evaluated through written assignments, lab assignments, an in-class GISc Practicum Final Exam, and in-class discussion and participation (in-class and remotely) in the monthly seminars.

**Course Format:**
This is a hybrid on-line course, meeting once per month for in-class discussions in a seminar format. Online assignments include reading, written responses to questions, GISc lab assignments, and web-based research. At the conclusion of the course, there will be an in-class GISc Practicum Final Exam, worth 15% of the total final grade for the course.

**Grading Policy:**
Grades will not be curved, there will be no extra credit (except as stated for undergraduates successfully completing graduate level assignments), and no grades will be dropped.

**Class Participation:**
Class participation includes engagement in discussions and answering of questions during the in-class meeting seminars. Since the class meets as a group only once per month, promptness and attendance
at these meetings is imperative. Lateness and absence will count against this grade. Class participation also includes appropriate timeliness and proper format in communications, and accounts for 15% of the final grade.

**Lab Assignments:**
Lab assignments consist of GISc labs or research that may be completed in the GISc Lab during open lab periods, or as take-home work (most likely both). Student copies of the relevant GISc software will be provided to be installed on the home computers. All assignments must be uploaded to Blackboard by the due date and times stated in the syllabus in order to receive credit. Labs must be saved as a word document, an image file, and/or PDF. The documents must be saved as LastName_FirstName_LabName (e.g. Smith_Joe_Lab1.doc). Lab assignments count for 35% of the total final grade.

**Written Assignments:**
Each week there will be questions posted on Blackboard referring to the readings, web-based research, and GISc lab exercises for that week which will require responses from each student that must be uploaded to Blackboard by the due date and time. Responses are to be thorough, succinct, and answer the question as completely as possible. Written assignments count for 35% of the total final grade.

**Student Preparation:**
**NOTE:** Students in GEP 310/GEP 610/EES 79903 have varying levels of GIS skills and background knowledge. To ensure as far as possible that everyone is "on the same page," and to minimize the effort required to understand the topics of spatial analysis, simulation, and modeling to be covered in this course, students are urged to review the following material, especially as necessary to supplement any known or potential area of deficiency.

All students will be expected to have a grasp of the rudiments of map composition and graph design, a familiarity with general GIS theory, a reasonable understanding of basic statistics, and a working knowledge of ArcGIS software and Windows operating system.

For general information on thematic mapping, map composition, and chart design, review *Cartography: Thematic Map Design*, by Borden Dent, (latest edition), McGraw Hill, New York, NY. See especially Chapters 13, 14, 15 and 18, regarding map composition, use of color, face selection, and graphing, and Chapters 4, 5, and 7, regarding thematic mapping. Chapter 6 is an excellent overview of GIS. This book is available on reserve at the Lehman Library. Another good one on the topic is *Cartography: Visualization of Spatial Data*, by M.J. Kraak and F.J. Orneling, Pearson Education Ltd. Harlow, UK.


**GISc Lab Etiquette:**
The GISc Lab is available ONLY to students enrolled in GISc courses (and other EGGS Dept. courses at Lehman College and EES courses through the Graduate Center). Please be considerate of others when working in the lab. There is no eating or drinking allowed in the lab at any time, and no cell phone use, either. Please be respectful of other students trying to concentrate, and keep idle chatter to
a minimum. When you arrive at the lab, sign in on the sign-in sheet. This is very important in order to demonstrate that students are actually using the lab. Do not save your work to the desktop or hard drive of the computer: it will not be saved after you shut down the computer. Save your work (often!) to a flash drive or external hard drive which you should bring to class every time. At the end of your lab session, please shut down your computer and clean up your workstation area.
The lab is open every weekday and several evenings, (the lab schedule will be posted by the second week of the term) and the GISc Lab manager and GISc lab tutor will be available during some of those hours to help you, if you get stuck. They are NOT to be considered a substitute for learning the software and methods on your own, however, so you must still try to figure things out and not become overly reliant on others for help. And although collaborative work with your classmates is encouraged as a good way to accelerate the learning process and reinforce concepts, we expect individual work products for lab exercises and written assignments.

Course Policies:

Lateness and absences: Lateness or absence will count against your class participation grade unless there is an emergency or it is cleared with the professor in a timely fashion before class. If you miss a session, it is your responsibility to check with your classmates for notes and other course materials.

Late submission of assignments or exams: Late assignments/exams will generally not be accepted unless it is cleared with the professor well before the due date. Under special circumstances, unexcused late assignments may be accepted (at the professor’s discretion) but one full letter grade will be subtracted. If there is a medical reason for lateness, please supply documentation.

Blackboard: Blackboard will be used to distribute and update assignments, readings, and other course materials. It is the student’s responsibility to check it regularly.

Cell phone use: The use of cell phones and other similar devices are not permitted during in-class seminar sessions.

Computers: Since the in-class seminars and the lab assignment work take place in a computer lab, the following additional rules apply:
- Monitors must be turned off during discussion seminars;
- No drinking or eating of any kind in the lab;
- No printing of any materials without permission from the instructor or the lab manager;

Incompletes: A grade of incomplete will only be considered if you are clearly making a good faith effort to complete the course (i.e., completing assignments regularly, participating in seminar discussions) and have a good reason for not completing the work (e.g. medical or family emergency). Lack of time-management skills is not a valid reason to be granted an incomplete. Incompletes must be arranged with the instructor IN ADVANCE of the end of the term, and must be completed by the required date, in accordance with College policy on completing coursework - within the following term for undergrads, and within one year for graduate students. Note that there are specific deadlines for the completion of incomplete grades (NOT merely the end of the next term or year), and you must check the Academic Calendar to find out which apply.

Dropping: The last day to drop the course with the grade of “WD” is February 18th (25% refund); Last day to drop a course with a “W” grade is April 24th (official withdrawal).

Academic dishonesty: Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, cheating, plagiarizing (including “cutting and pasting” or paraphrasing information from the internet without proper citation), fabricating information or citations, facilitating acts of academic dishonesty by others, submitting work of another person or papers written for other courses, or tampering with the academic work of other students. Students may be asked to submit their notes and references to prove that their work is their own. For further clarification, please read CUNY’s policy on
academic integrity at [http://www.lehman.edu/provost/documents/academic-integrity.pdf](http://www.lehman.edu/provost/documents/academic-integrity.pdf). Violators will be reported to the head of the Department and to the Dean of Student Affairs.

**Accommodation for Students with Disabilities:**
Lehman College is committed to providing access to all programs and curricula to all students. Students with disabilities who may need classroom accommodations are encouraged to register with the Office of Student Disability Services. For more information, please contact the Office of Student Disability Services, Shuster Hall, Room 238, tel #: 718-960-8441.

**The Academic Center for Excellence (ACE) and the Science Learning Center (SLC):**
Lehman College has two tutoring centers on campus. The ACE provides appointment-based and drop-in tutoring in the humanities, social sciences and writing, as well as general writing skills. The SLC provides drop-in tutoring for natural and computer science courses. To obtain more information about the ACE and SLC, please visit their website at [http://www.lehman.edu/issp](http://www.lehman.edu/issp), or please call the ACE at 718-960-8175, and the SLC at 718-960-7707.