Spring 2016
EES 79903, Spatial Analysis of Urban Health
L: Fridays, once per month from 4:00-6:00 p.m., Gillet Hall, Room 311
Profs. Juliana Maantay and Andrew Maroko

DRAFT SYLLABUS

Lehman College, City University of New York

Department of Earth, Environmental, and Geospatial Sciences

GEP 610/EES 79903/PUBH 85100: Spatial Analysis of Urban Health

Spring 2016

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

Required Textbooks:

- Shaw, Dorling, Mitchell, 2001. *Health, Place, and Society* (Open Access book - will be available in pdf on Blackboard)
- Koch, T., 2005. *Cartographies of Disease: Maps, Mapping, and Medicine,* ESRI Press
- Gatrell, A. and Elliott, S., 2009. *Geographies of Health, 2nd Edition,* Wiley-Blackwell
- 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 29th*****

Weekly Class Topics/Readings/Lab Exercises:

1. **History of health geography and the context of urban health – Part 1**
   Readings:
   - Shaw, Dorling, Mitchell, 2001. *Health, Place, and Society,* Chapter 1, Introduction; and Chapter 2, Health, Place and Society: An Historical Perspective, pp. 1-40.
   - Koch, T., 2005. *Cartographies of Disease: Maps, Mapping, and Medicine*, Chapter 1, Mapping and Mapmaking, pp. 1-13.
   - Hofrichter, R., ed., 2003. *Health and Social Justice,* Chapter 20, (Geronimus, A.) Addressing Structural Influences on the Health of Urban Populations, pp. 542-556.

   Lab Assignment: No Lab

   Week 1 Written Assignment Responses due 3:00 PM, Tuesday, February 2nd, and Reaction Comments due 3:00 PM, Wednesday, February 3rd

2. **History of health geography and the context of urban health – Part 2**
   Readings:
   - Koch, T., 2005. *Cartographies of Disease: Maps, Mapping, and Medicine*, Chapter 2, Medical Mapping: Early Histories; Chapter 3, Mapping and Statistics, 1830-1849; and Chapter 4, John Snow: The London Epidemics, pp. 15-103.
   - Gatrell and Elliott, 2009. *Geographies of Health,* Chapter 1, Introducing Geographies of Health, pp. 3-22.

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

   Week 2 Written Assignment Responses due 3:00 PM, Tuesday, February 9th, and Reaction Comments due 3:00 PM, Wednesday, February 10th. Lab Assignment A due 3:00 PM Wednesday, February 10th

3. **Exploring and measuring urban exposures/methods – Part 1: Proximity and containment**
   Readings:
   - Shaw, Dorling, and Mitchell, 2001. *Health, Place, and Society*, Chapter 3, Mapping and Measuring, pp. 41-85.
   - Maantay, J.A., 2002. Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environmental Health and Equity, *Environmental Health Perspectives*, 110 (S2): 161-171.
   - Maheswaran and Craglia, 2004. *GIS in Public Health Practice*, Chapter 7, Using GIS for Environmental Exposure Assessment: Experience from the Small Area Health Statistics Unit, pp. 109-124.
   - Chakraborty, J., and Maantay, J.A., 2011. Proximity Analysis for Exposure Assessment in Environmental Health Justice Research, in Maantay and McLafferty, eds., *Geospatial Analysis of Environmental Health,* Chapter 5, pp. 111-138.

   Lab Assignment B: Analyzing Exposure using Multiple Ring Buffers and Relative Risk

Week 3 Written Assignment Responses due 3:00 PM, Tuesday, February 16th, and Reaction Comments due 3:00 PM, Wednesday, February 17th. Lab Assignment B due 3:00 PM, Wednesday, February 17th

4. Exploring and measuring urban exposures/methods – Part 2: Exploratory Spatial Data Analysis – interpolation methods and land use regression modeling

Readings:

- Gatrell and Elliott, 2009. *Geographies of Health*, Chapter 3, Method and Technique in the Geography of Health, pp. 49-84.
- Maroko, A., Maantay, J.A., and Grady, K., 2011. Using Geovisualization and Geospatial Analysis to Explore Respiratory Disease and Environmental Health Justice in New York City, Chapter 2 in Maantay, J.A. and McLafferty, S. 2011. *Geospatial Analysis of Environmental Health,* pp. 39-66.
- Maheswaran and Craglia, 2004. *GIS in Public Health Practice*, Chapter 8, Using Modeled Outdoor Air Pollution Data for Health Surveillance, pp. 125-149.
- Setton, E., et al., 2011. Outdoor Air Pollution and Health – A Review of the Contributions of Geotechnologies to Exposure Assessment, in Maantay and McLafferty, eds., *Geospatial Analysis of Environmental Health,* Chapter 3, pp. 67-91.

Lab Assignment C: Exploring Exposure and Environmental Justice using Interpolation

Week 4 Written Assignment Responses due 3:00 PM, Tuesday, February 23rd, and Reaction Comments due 3:00 PM, Wednesday, February 24th (No Lab Assignment due)

*****In-Class Meeting, 4:00 – 6:00 PM, Friday, February 26th*****

5. Issues of Equity: Environmental Justice and Health Disparities

Readings:

- Shaw, Dorling and Mitchell, 2001. *Health, Place, and Society,* Chapter 5, Health Inequalities: Composition or Context? pp. 126-154.
- Gatrell and Elliott, 2009. *Geographies of Health,* Chapter 4, Inequalities in Health Outcomes, pp. 87-123.
- Pastor, M., Sadd, J., Morello-Frosch, R., 2007. *Still Toxic After All These Years: Air Quality and Environmental Justice in the San Francisco Bay Area.* Center for Justice, Tolerance, and Community, University of California, Santa Cruz. 16 pages
- Grady, S., 2011. Housing Quality and Racial Disparities in Low Birth Weight: A GIS Assessment. Chapter 15 in Maantay and McLafferty, eds. *Geospatial Analysis of Environmental Health,* pp. 303-318.

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

Week 5 Written Assignment Responses due 3:00 PM, Tuesday, March 1st, and Reaction Comments due 3:00 PM, Wednesday, March 2nd. Lab Assignment C due 3:00 PM, Wednesday, March 2nd.

6. **Social and spatial patterning of health**

Readings:

- Shaw, Dorling and Mitchell, 2001. *Health, Place, and Society,* Chapter 4, The Social and Spatial Patterning of Health, pp. 86-123; Chapter 6, Health and Social/Spatial Mobility, pp. 156-181.
- Angeles, G., et al., 2009. The 2005 census and mapping of slums in Bangladesh: design, select results and application. *International Journal of Health Geographics*, 8(32): 1-19.
- Bedi, T., Coudouel, A., Simler, K., eds., 2007. *More Than a Pretty Picture: Using Poverty Maps to Design Better Policies and Interventions,* The World Bank. **[NOTE: read Chapter 1, pages 3-22, and skim some of the country examples, pages 53-286 for the maps and graphic visualizations of data.]**
- Levy, J., et al., 2006. Incorporating concepts of inequality and inequity into health benefits analysis. *International Journal for Equity in Health*, 5(2): 1-19.

Lab Assignment D: GINI Index and Low Birth Weight: Comparing Regional Differences in Health Outcomes

Week 6 Written Assignment Responses due 3:00 PM, Tuesday, March 8th, and Reaction Comments due 3:00 PM, Wednesday, March 9th. Lab Assignment D due 3:00 PM, Wednesday, March 9th

7. **Accessibility to the Benefits of the Urban Environment**

Readings:

- Oliver, L., Schuurman, N., and Hall, A.W., 2007. Comparing circular and network buffers to examine the influence of land use on walking for leisure and errands. *International Journal of Health Geographics,* 6(41): 1-11.
- Miyake, K., Maroko, A., Grady. K., Maantay, J., Arno, P., 2010. Not just a Walk in the Park: Methodological Improvements for Determining Environmental Justice Implications of Park Access in New York City for the Promotion of Physical Activity. *Cities and the Environment*, 3(1): Article 8 (17 pages).
- Weiss, R., Maantay, J.A., Fahs, M., 2010. Promoting Active Urban Aging: A Measurement Approach to Neighborhood Walkability for Older Adults. *Cities and the Environment*, 3(1):Article 12 (17 pages).
- Rundle, A., Neckerman, K., Lance Freeman, Lovasi, G., Purciel, M., Quinn, J., et al., 2008. Neighborhood Food Environment and Walkability Predict Obesity in New York City. *Environmental Health Perspectives,* 117(3): 442-447.

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

Week 7 Written Assignment Responses due 3:00 PM, Tuesday, March 15th, and Reaction Comments due 3:00 PM, Wednesday, March 16th. Lab Assignment E due 3:00 PM, Wednesday, March 16th.

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

Readings:

- Laveist, T.A., Gaskin, D., and Trujillo, A.J., 2011. *The Effects of Racial Segregation on Health Inequalities*. Joint Center for Political and Economic Studies, 40 pages.
- Massey, D., and Denton, N., 1988. The Dimensions of Residential Segregation. *Social Forces,* 67 (2): 281-315.
- Wong, D., 2005. Formulating a General Spatial Segregation Measure. *The Professional Geographer*, 57(2): 285-294.
- Johnston, R., et al., 2009. Research Note – Measuring Ethnic Residential Segregation: Putting Some More Geography In. *Urban Geography*, 30(1): 91–109.

Lab Assignment F: Inter-Urban Comparison using Segregation Indices

Week 8 Written Assignment Responses due 3:00 PM, Tuesday, March 22nd, and Reaction Comments due 3:00 PM, Wednesday, March 23rd (No Lab Assignment Due)

Association of American Geographers (AAG) / International Society of Urban Health (ISUH) Meeting March 29th – April 4th, 2016

9. **Physical and Social Vulnerabilities**

Readings:

- Maantay, J.A., Maroko, A.R., and Culp, G., 2010. Using Geographic Information Science to Estimate Vulnerable Urban Populations for Flood Hazard and Risk Assessment in New York City, in Showalter, P., and Lu, Y. eds., *Geotechnical Contributions to Urban Hazard and Disaster Analysis,* Chapter 5, pp. 71-97, Springer-Verlag.
- Gatrell and Elliott, 2009. *Geographies of Health,* Chapter 9, Health Impacts of Global Environmental Change, pp. 218-35.
- Freudenberg, N., Saegert, S., and Klitzman, S., eds., *Urban Health and Society: Interdisciplinary Approaches to Research and Practice*, Chapter 9, How Vulnerabilities and Capacities Shape Population Health after Disasters, pp. 217-237.
- Maantay, J.A., and Becker, S., 2012. The Health Impacts of Global Climate Change: A Geographic Perspective. *Applied Geography*, 33: 1-3.
- Pearce et al, 2010. Environmental Justice and Health: The Implications of the Socio-Spatial Distribution of Multiple Environmental Deprivation for Health Inequalities in the United Kingdom. *Transactions of the Institute of British Geographers* 35:522-539.
- Tate, E. (2012). Social Vulnerability Indices: A Comparative Assessment Using Uncertainty and Sensitivity Analysis. *Natural Hazards* 63, pp. 325-347.

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

Week 9 Written Assignment Responses due 3:00 PM, Tuesday, April 5th, and Reaction Comments due 3:00 PM, Wednesday, April 6th. Lab Assignment F due 3:00 PM, Wednesday, April 6th.

*****In-Class Meeting 4:00 – 6:00 PM, Friday, April 8th*****

10. **Social and environmental stressors and disease outcomes**

Readings:

- Maantay, 2013. The Collapse of Place: Derelict Land, Deprivation, and Health Inequality in Glasgow, Scotland. *Cities and the Environment*, 6(1):Article 10 – 54 pages.
- Maroko, A.R., Riley, R., et al, 2013. Direct observation of neighborhood stressors and environmental justice in the South Bronx, New York City. *Population and Environment*. (20 pages)
- Ellaway, A., Morris, G., Curtice, J., Robertson, C., Allardice, G., and Robertson, R., 2009. Associations between health and different types of environmental incivility: A Scotland-wide study. *Public Health, 123:* 708–713.
- Downey, L., and Van Willigen, M., 2005. Environmental Stressors: The Mental Health Impacts of Living Near Industrial Activity. *Journal of Health and Social Behavior*, 46(3): 289–305.

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

Week 10 Written Assignment Responses due 3:00 PM, Tuesday, April 12th, and Reaction Comments due 3:00 PM, Wednesday, April 13th (No Lab Assignment Due)

11. **Urban planning and health – "Designing Healthy Communities"**

Readings:

- Maantay, 2004. Industrial Zoning Changes in New York City: A Case Study of "Expulsive Zoning,"*MIT Projections,* pp. 63-108.
- Lauri Andress, 2009. *Healthy Urban Planning: The Concept, Tools, and Application,* pp. 1-48.
- Barton, et al, 2003, *Healthy Urban Planning in Practice: Experience of European Cities,* World Health Organization.
- De Zeeuw, H., 2004. *The Development of Urban Agriculture*. Keynote paper for the International Conference "Urban Agriculture, Agro-Tourism, and City Region Development," Beijing, October 10-14, 2004.
- Ottmann, M., Maantay, J. A., Grady, K., and Fonte, N., 2012. Characterization of Urban Agricultural Practices and Gardeners' Perceptions in Bronx Community Gardens, New York City. *Cities and the Environment,* 5(1): Article 13. (25 pages)

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

Week 11 Written Assignment Responses due 3:00 PM, Tuesday, April 19th, and Reaction Comments due 3:00 PM, Wednesday, April 20th. Lab Assignment G due 3:00 PM, Wednesday, April 20th

SPRING BREAK, APRIL 22nd – April 30th

12. **Spread of Disease - Part 1: Spatial Diffusion, Clustering, and Spatio-temporal Analysis**
Readings:
    - Koch, T., 2005. *Cartographies of Disease,* Chapter 10, Complex Processes: Diffusion and Structure, pp. 240-282.
    - McLafferty and Cromely, 2002. *GIS and Public Health.* Chapter 5, Analyzing Spatial Clustering of Health Events, pp. 130-157; and Chapter 7, Analyzing the Risk and Spread of Infectious Diseases, pp. 188-209.
    - Pathak, E.B., Reader, S., Tanner, J.-P., and Casper, M.L., 2011. Spatial clustering of non-transported cardiac decedents: the results of a point pattern analysis and an inquiry into social environmental correlates. *International Journal of Health Geographics*, 10(46): 1-11.
    - Carlos, H., et al., 2010. Density estimation and adaptive bandwidths: A primer for public health practitioners. *International Journal of Health Geographics,* 9(39): 1-8.
    - Chaikaew, N., et al. 2009. Exploring spatial patterns and hotspots of diarrhea in Chiang Mai, Thailand. *International Journal of Health Geographics,* 8(36): 1-10.

    Lab Assignment H: Exploring the Spatial Variation of Noise Complaints using Cluster Analysis and Kernel Density Estimation.

    Week 12 Written Assignment Responses due 3:00 PM, Tuesday, May 3rd, and Reaction Comments due 3:00 PM, Wednesday, May 4th (No Lab Due)

13. **Spread of Disease - Part 2: Spatial Diffusion, Clustering, and Spatio-temporal Analysis**
Readings:
    - Koch, T., 2005. *Cartographies of Disease,* Chapter 11, GIS and Medical Mapping, pp. 253-326.
    - Gatrell and Loytonen, 1998. *GIS and Health*, Chapter 7, GIS, Time Geography, and Health, pp. 97-110.
    - Qi, F., and Du, F., 2013. Tracking and visualization of space-time activities for a micro-scale flu transmission study. *International Journal of Health Geographics*, 12:6, pp. 1-16.
    - Duczmal L.H., et al. 2011. Voronoi distance based prospective space-time scans for point data sets: a dengue fever cluster analysis in a southeast Brazilian town. *International Journal of Health Geographics,* 10:29 pp. 1-14.
    - Corner, R., et al., 2013. Modelling typhoid risk in Dhaka Metropolitan Area of Bangladesh: the role of socio-economic and environmental factors. *International Journal of Health Geographics*, 12:13, pp. 1-15.

    Lab Assignment: Lab H continues - Exploring the Spatial Variation of Noise Complaints using Cluster Analysis and Kernel Density Estimation.

    Week 13 Written Assignment Responses due 3:00 PM, Tuesday, May 10th, and Reaction Comments due 3:00 PM, Wednesday, May 11th Lab Assignment H due 3:00 PM Wednesday, May 11th

    *****In-Class Meeting, 4:00 – 6:00 PM, Friday, May 13th*****

14. Analyzing Historical Health Data

Readings:

- Shaw, Dorling, Mitchell, 2001. *Health, Place, and Society,* Chapter 7, Putting Research into Context: From Cholera to Good Health for All, pp. 182-208.
- Kuo, C.-L., and Fukui, H., 2007. Geographical structures and the cholera epidemic in modern Japan: Fukushima prefecture in 1882 and 1895. *International Journal of Health Geographics*, 6:25, pp. 1-10.
- Curtis, A., 2008. Three-dimensional visualization of cultural clusters in the 1878 yellow fever epidemic of New Orleans. *International Journal of Health Geographics*, 7:47, pp. 1-10.
- Séguy, I., et al., 2012. A geographic information system for the study of past epidemics: The 1705 epidemic in Martigues (Bouches-du-Rhône, France), "Historical Studies on Mortality," special issue, Canadian Studies in Population, 39(3–4): 107–122.
- Chandra. S., et al., 2013. A geographic analysis of population density thresholds in the influenza pandemic of 1918– 19. *International Journal of Health Geographics*, 12:9, pp. 1-10.

Lab Assignment: No Lab

Week 14 Written Assignment Responses due 3:00 PM, Tuesday, May 17th, and Reaction Comments due 3:00 PM, Wednesday, May 18th (No Lab Due)

15. Final Exam *(take-home exam, during Final Exam Week)* ***Due Wednesday, May 25th by 3:00PM***

Grading:

Lab Assignments	35%
Written Assignments	35%
Final Exam	20%
Participation	10%

Assessment:

Grade Scale:	
A	>= 95
A-	90-94
B+	85-89
B	80-84
B-	75-79
C+	70-74
C	65-69
C-	60-64
D+	55-59
D	50-54
F	< 50

Your understanding of the course material will be evaluated through written assignments, lab assignments, a take-home Final Exam, and in-class discussion and participation in the monthly seminars, as well as weekly participation in the on-line discussion board.

Course Format:
This is a hybrid on-line course, meeting once per month for in-class discussions in a seminar format. On-line assignments include reading, written responses to questions, GISc lab assignments, discussion forum, and web-based research. At the conclusion of the course, there will be a take-home Final Exam, worth 20% of the total final grade for the course.

Grading Policy:
Grades will not be curved, there will be no extra credit, 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 weekly discussion board submissions, 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.

Final Exam:
The Final Exam consists of essay questions taken directly from the Weekly Written Assignments. Therefore it is a good idea to formulate responses to ALL the Weekly Assignment questions, even though you only will need to write and submit on Blackboard only one response per week.

Student Preparation:
NOTE: Students in GEP 610/PHE 717/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, typeface 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.
For an accessible and clear review of geostatistics, peruse ***An Introduction to Applied Geostatistics***, by Edward Isaaks and R. M. Srivastava, 1989, Oxford University Press, Oxford, UK Concentrate on Chapters 1 through 4 on descriptive statistics. On reserve at Lehman Library. **Recommended GIS Workbook***:* ***Mastering ArcGIS***, 2005, McGraw-Hill, NY, NY
For an introduction to GIS theory and concepts, consult ***Geographical Information Systems and Computer Cartography,*** by Christopher Jones, 1997, Addison Wesley Longman, Ltd, Essex, UK; OR ***An Introduction to Geographical Information Systems***, by Ian Heywod, Sarah Cornelius, and Steve Carver, Prentice Hall/Addison Wesley Longman, Ltd., OR ***GIS for the Urban Environment***, by Juliana Maantay and John Ziegler, 2006, ESRI Press, Inc. (on reserve at Lehman Library.)

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 17th (25% refund); Last day to drop a course with a "W" grade is April 16th (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. 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, or please call the ACE at 718-960-8175, and the SLC at 718-960-7707.