

# SOCIAL DETERMINANTS OF HEALTH RESEARCH METHODS

## EPI/HSERV 548

WINTER 2011

(version 1/7/11)

### INSTRUCTORS:

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### COURSE SCHEDULE:

- Tuesdays 10:30 – 11:50 am Room SCC 222
- Thursdays 10:30 – 11:50 am Room SCC 222

### COURSE WEBSITE:

<http://courses.washington.edu/epi548/>

### COURSE DESCRIPTION:

This 3-unit course will explore study-design, measurement, and analytic issues applicable to research into the social determinants of health (SDH). This graduate-level lecture/seminar course is offered to students with a basic knowledge of epidemiologic and biostatistical principles. The course consists of 15 lectures/seminars and 5 journal-article critique sessions.

### COURSE LEARNING OBJECTIVES:

At the end of the course, the student will be able to:

1. List at least 4 approaches to assessing causality and explain their strengths and weaknesses when applied to the SDH
2. Construct a framework depicting the relationship between social factors and health disparities
3. Develop a conceptual model to accurately and parsimoniously reflects the core factors related to a social factors influence on health and that presents a testable pathway for a hypothesis
4. Distinguish between SDH research questions with 2 or more units of analysis (multi-level) and those with a single unit of analysis and compare and contrast the interpretation of the results
5. Identify the key features of traditional and non-traditional epidemiologic study designs to test hypotheses related to the SDH
6. Compare and contrast individual and group level measures of the same SDH construct, and describe the relationship between them
7. List, describe, and compare the common indicators of socioeconomic status
8. Describe the strengths and the inherent limitations of ecologic data and its analysis and list methods to decrease the likelihood of biased results
9. Apply the concept of multi-level analyses to space-dependent and time-dependent SDH data structures and describe their appropriate statistical models
10. Demonstrate competence interpreting statistical output for ecologic, multi-level, and longitudinal analytic approaches
11. Describe the application of network and structural equation models to SDH research
12. Critically review the published literature addressing the SDH and provide a methods-based critique of the scientific approach
13. Convey in writing the basic concepts and understandings of SDH research methods through 3-page critique of a journal article

**PREREQUISITES:**

Prerequisites include either EPI 511 or the 512/513 series and either the BOST 511/512 series or the 517/518 series or instructors permission for those student who already have an epidemiology and biostatistics background.

**COURSE MATERIALS:**

Most readings are on UW Health Sciences Library E-Reserves and can be found by searching “EPI548” or “HSERV548” under Course Number at the following site (UW NetId required): <https://eres.lib.washington.edu/>

Class notes will be posted by 9:00 am on the day of the presentation. Notes and homework assignments can be found on the EPI/HSERV 548 course website at: <http://courses.washington.edu/epi548/>

Username: student

Password: [See instructor]

Some of the additional readings come from 5 books, which have been placed on 2-hour holds in the Health Sciences Library for winter quarter. These books include the following:

*Biostatistics: a Methodology for the Health Sciences*. 2004 Gerald van Belle et al.

*Neighborhoods and Health*. 2003. Edited by Ichiro Kawachi, Lisa F. Berkman

*Social Epidemiology*. 2000. Edited by Lisa F. Berkman, Ichiro Kawachi

*Methods in Social Epidemiology*. 2006. Edited by J. Michael Oakes

*Causal Inference*. 1988. Edited by Kenneth Rothman.

**GUEST LECTURERS:**

Gary Chan, PhD

Assistant Professor, Departments of Biostatistics and Health Services ([kcgchan@u.washington.edu](mailto:kcgchan@u.washington.edu))

Kenneth M. Rice, PhD

Associate Professor, Departments of Biostatistics ([kenrice@u.washington.edu](mailto:kenrice@u.washington.edu))

Lianne Sheppard, PhD

Professor, Departments of Biostatistics and Environmental and Occupational Health Sciences ([sheppard@u.washington.edu](mailto:sheppard@u.washington.edu))

Adam A. Szpiro, PhD

Assistant Professor, Department of Biostatistics ([aszpiro@u.washington.edu](mailto:aszpiro@u.washington.edu))

**ASSESSMENT:**

Students will be evaluated on 4 criteria for an overall course grade. For students not taking the course for a grade, credit will be given if 70% of the points are earned.

- 1) Participation in class discussion throughout course (20% of final grade)
- 2) Journal article critique (20% of final grade): Five journal-article critique sessions are part of the regular course schedule. These discussion sessions are led by the students. Students will be assigned to 2 of the 5 sessions at the beginning of the course so that each of the 5 sessions will have from 4-6 students assigned to it and working in a group. Students are graded on their contribution to the 2 sessions. Working together, each group will have to create 3-5 discussion questions for the class that are distributed to the class a week before the discussion. On the day of the discussion, a primary discussant and a secondary discussant will be selected at random from the group and will lead the discussion for the class. Others from the group are expected to contribute to the discussion. More details about leading a journal article critiques can be found in the “SDHRM journal critique logistics and guidelines.doc” document found on the course web site.
  - a) Questions for class discussion (5% of final grade): each group is to meet and develop 3-5 discussion questions for each article. Questions are distributed to the class approximately 1 week before the discussion.

- b) Knowledge of the article (*15% of final grade*): based on contributions to the discussion and on answers to questions from the class instructor during discussion.
- 3) Homework assignments (*30% of final grade*)
- Creation of conceptual model (*7.5%*)
  - Choosing between studies designs (*7.5%*)
  - Interpretation of ecologic data analysis and multi-level data analysis output (*10%*)
  - Interpretation of longitudinal analysis output (*5%*)
- 4) Final: Journal article critique (*30% of final grade*): A journal article will be distributed on the last day of class and all students will be required to provide a written critique of the paper's methods that address the following points: conceptual model, study design, measurements, analytic approach, and conclusion.

**CRITERIA FOR GRADES:**

| Range                          | Percent of Class | Quality of Performance  |
|--------------------------------|------------------|---|
| 3.9 - 4.0<br>(A)               | Graduate: 20%    | Superior performance in all aspects of the course with work exemplifying the highest quality. Unquestionably prepared for subsequent courses in field.                                |
| 3.5 - 3.8<br>(A-)              | Graduate: 50%    | Superior performance in most aspects of the course; high quality work in the remainder. Unquestionably prepared for subsequent courses in field.                                      |
| 3.2 - 3.4<br>(B+)              | Graduate: 25%    | High quality performance in all or most aspects of the course. Very good chance of success in subsequent courses in field.  |
| 2.9 - 3.1<br>(B)               | Graduate: 5%     | High quality performance in some of the course; satisfactory performance in the remainder. Good chance of success in subsequent courses in field.                                     |
| 2.5 - 2.8<br>(B-)              | Graduate: 0%     | Satisfactory performance in the course. Evidence of sufficient learning to succeed in subsequent courses in field.  |
| 2.2 - 2.4<br>(C+)              | Graduate: 0%     | Satisfactory performance in most of the course, with the remainder being somewhat substandard. Evidence of sufficient learning to succeed in subsequent courses in field with effort. |
| 2.1 and below<br>(C and below) | Graduate: 0%     | Evidence of some to minimal learning. Marginal to very low chance of success in subsequent courses in field.  |

**DISTRIBUTION AND DUE DATES FOR HOMEWORK AND FINAL:**

- Thursday, Jan 6: Distributed homework assignment #1
- Wednesday, Jan 12: Receive homework assignment #1 by 17h00
- Tuesday, Jan 25: Distributed homework assignment #2
- Tuesday, Feb 1: Collect homework assignment #2
- Thursday, Feb 17: Distributed homework assignment #3
- Thursday, Feb 24: Collect homework assignment #3
- Tuesday, Mar 1: Distributed homework assignment #4
- Tuesday, Mar 8: Collect homework assignment #4
- Thursday, Mar 10: Distribute final journal article for critique
- Monday, Mar 14: Final journal critique due by 9h00

**ABBREVIATED COURSE OUTLINE:**

| <b>Session</b>            | <b>Session Description</b>   | <b>Lecturers</b>              |
|---------------------------|--|-------------------------------|
| <b>#1</b><br>Tue, Jan 4   | <i>Introduction and Overview</i>   | Nicholas L. Smith, PhD        |
| <b>#2</b><br>Thu, Jan 6   | <i>Causality and Conceptual Models</i>   | NLS                           |
| <b>#3</b><br>Tue, Jan 11  | <i>Health Disparities, Social Determinants, and Embodiment</i>                                 | NLS & student-led discussion  |
| <b>#4</b><br>Thu, Jan 13  | <i>Major Conceptual Models in SDH Research</i>   | NLS & student-led discussion  |
| <b>#5</b><br>Tue, Jan 18  | Journal Article Critique #1:<br>Conceptual Models  | None (student-led discussion) |
| <b>#6</b><br>Thu, Jan 20  | <i>Study Design Issues (part 1)</i>  | NLS                           |
| <b>#7</b><br>Tue, Jan 25  | <i>Study Design Issues (part 2)</i>  | NLS & student-led discussion  |
| <b>#8</b><br>Thu, Jan 27  | <i>Measurement Issues</i>  | SAAB                          |
| <b>#9</b><br>Tue, Feb 1   | Journal Article Critique #2:<br>Study Design and Measurements                                  | None (student-led discussion) |
| <b>#10</b><br>Thu, Feb 3  | <i>Analytic Issues (part 1):<br/>Ecologic Data</i>   | Adam A. Szpiro, PhD           |
| <b>#11</b><br>Tue, Feb 8  | <i>Analytic Issues (part 2):<br/>Analyzing Multi-level Data</i>                                | Kenneth M. Rice, PhD          |
| <b>#12</b><br>Thu, Feb 10 | <i>Social Status and Health Disparities</i>  | SAAB & student-led discussion |
| <b>#13</b><br>Tue, Feb 15 | <i>Analytic Issues (part 3):<br/>Confounding and Effect Modification with Multi-level Data</i> | Lianne Sheppard, PhD          |
| <b>#14</b><br>Thu, Feb 17 | <i>Analytic Issues (part 4)<br/>Network Analysis and Multi-level Review</i>                    | SAAB & NLS                    |
| <b>#15</b><br>Tue, Feb 22 | Journal Article Critique #3:<br>Multilevel   | None (student-led discussion) |
| <b>#16</b><br>Thu, Feb 24 | <i>Analytic Issues (part 5)<br/>Longitudinal Data</i>  | Gary Chan, PhD                |
| <b>#17</b><br>Tue, Mar 1  | <i>Analytic Issues (part 6):<br/>Geography &amp; Neighborhood and Longitudinal Data Review</i> | SAAB & NLS                    |
| <b>#18</b><br>Thu, Mar 3  | Journal Article Critique #4:<br>Longitudinal   | None (student-led discussion) |
| <b>#19</b><br>Tue, Mar 8  | <i>Analytic Issues (part 7):<br/>Structural Equation Models and Course Review</i>              | SAAB & NLS                    |
| <b>#20</b><br>Thu, Mar 10 | Journal Article Critique #5:<br>General Overview   | None (student-led discussion) |

## COURSE OUTLINE:

| Session                                  | Session Description with Required and Additional Readings   |
|--|---|
| <b>#1</b><br><b>Tue</b><br><b>Jan 4</b>  | <p><b><i>Introduction and Overview (NLS)</i></b></p> <ol style="list-style-type: none"> <li>1. Introductions</li> <li>2. Course logistics</li> <li>3. Defining social determinants of health (SDH)</li> <li>4. Overview of the field</li> </ol> <p><b><i>Required Readings:</i></b> None</p>  |
| <b>#2</b><br><b>Thu</b><br><b>Jan 6</b>  | <p><b><i>Causality and Conceptual Models (NLS)</i></b></p> <ol style="list-style-type: none"> <li>1. Overview of the dominant theories of causality and their application to principles of SDH research</li> <li>2. Conceptual models in SDH research</li> </ol> <p><b><i>Required Readings:</i></b></p> <p>Greenland S, Brumback B. An overview of relations among causal modelling methods. <i>Int J Epidemiol</i> 2002;31:1030-7.</p> <p>Marmot M. "Multilevel approaches to understanding social determinants." In Berkman LF, Kawachi I: <i>Social Epidemiology</i>. New York: Oxford University Press, 2000 (pp. 349-67).</p> <p>Glass TA, McAtee MJ. Behavioral science at the crossroads in public health: extending horizons, envisioning the future. <i>Soc Sci Med</i> 2006;62:1650-71.</p> <p><b><i>Additional Resources:</i></b></p> <p>Hernan MA, Robins JM. Causal inference. 2010 (unpublished)<br/> <a href="http://www.hsph.harvard.edu/faculty/miguel-hernan/causal-inference-book/">http://www.hsph.harvard.edu/faculty/miguel-hernan/causal-inference-book/</a>.</p> <p>Kaufman JS, Kaufman S, Poole C. Causal inference from randomized trials in social epidemiology. <i>Soc Sci Med</i> 2003;57:2397-409.</p> <p>Krieger N. Epidemiology and the web of causation: has anyone seen the spider? <i>Soc Sci Med</i> 1994;39:887-903.</p> <p>Krieger N. Ladders, pyramids and champagne: the iconography of health inequities. <i>J Epidemiol Community Health</i> 2008;62:1098-104.</p> <p>Robins JM. Data, design, and background knowledge in etiologic inference. <i>Epidemiology</i> 2001;12:313-20.</p> <p>Rothman KJ. Causal Inference. Chestnut Hill, MA : Epidemiology Resources, 1988</p> <p>► <b>Distribute homework assignment #1: Conceptual model creation</b></p> |
| <b>#3</b><br><b>Tue</b><br><b>Jan 11</b> | <p><b><i>Health Disparities, Social Determinants, and Embodiment</i></b></p> <ol style="list-style-type: none"> <li>1. Construct a framework depicting the relationship between social factors and health disparities</li> <li>2. Conceptualize the role of embodiment in social determinants of health theory</li> </ol> <p><b><i>Required Readings:</i></b></p> <p>Krieger N, Alegria M, Almeida-Filho N, Barbosa da Silva J, Barreto ML, Beckfield J, Berkman L, Birn AE, Duncan BB, Franco S, Garcia DA, Gruskin S, James SA, Laurell AC, Schmidt MI, Walters KL. Who, and what, causes health inequities? Reflections on emerging debates from an exploratory Latin American/North American workshop. <i>J Epidemiol Community Health</i>. 2010;64:747-749</p> <p>Marmot M. Achieving health equity: from root causes to fair outcomes. <i>Lancet</i>. 2007;370:1153-1163.</p> <p><b><i>Additional Resources:</i></b></p> <p>Krieger N, Davey Smith G. "Bodies count," and body counts: social epidemiology and embodying inequality. <i>Epidemiol Rev</i>. 2004;26:92-103.</p> <p>Krieger N. Embodiment: a conceptual glossary for epidemiology. <i>J Epidemiol Community Health</i>. 2005;59:350-355.</p>  |

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| Wed<br>Jan 12       | ► <b>Homework assignment #1 due at 17h00: Conceptual model creation</b>  |
| #4<br>Thu<br>Jan 13 | <p><b>Major Conceptual Models in SDH Research: NLS and student-led discussion</b></p> <ol style="list-style-type: none"> <li>1. Overview of selected conceptual models of SDH</li> <li>2. Critique conceptual models of peers</li> </ol> <p><b>Required Readings:</b></p> <p>Antoni MH, Lutgendorf SK, Cole SW, et al. The influence of bio-behavioural factors on tumour biology: pathways and mechanisms. <i>Nat Rev Cancer</i> 2006;6:240-8.</p> <p>Kuzawa CW, Sweet E. Epigenetics and the embodiment of race: developmental origins of US racial disparities in cardiovascular health. <i>Am J Hum Biol.</i> 2009;21:2-15.</p> <p>Morello-Frosch R, Shenassa ED. The Environmental “riskscape” and social inequality: implications for explaining maternal and child health disparities. <i>Environ Health Perspect</i> 2006;114:1150-3.</p> <p>Uchino BN. Social Support and Health: a review of physiological processes potentially underlying links to disease outcomes. <i>J Behav Med</i> 2006;29:377-387.</p> <p>Galobardes B, Lynch JW, Davey Smith G. Childhood socioeconomic circumstances and cause-specific mortality in adulthood: systematic review and interpretation. <i>Epidemiol Rev.</i> 2004;26:7-21.</p> <p>Subramanian SV, Kawachi I. Income inequality and health: what have we learned so far? <i>Epidemiol Rev.</i> 2004;26:78-91.</p> <p>Szreter S, Woolcock M. Health by association? Social capital, social theory, and the political economy of public health. <i>Int J Epidemiol</i> 2004;33:650-67.</p> <p><b>Additional Resources:</b></p> <p>Francis DD. Conceptualizing child health disparities: a role for developmental neurogenomics. <i>Pediatrics.</i> 2009;124 Suppl 3:S196-202.</p> <p>Measurement and Evidence Knowledge Network. “The Social Determinants of Health: Developing an evidence base for political action.” Final Report to WHO. October 2007. (Chapter 1)</p> |
| #5<br>Tue<br>Jan 18 | <p><b>Journal Article Critique #1: Conceptual Models</b></p> <p>Gold R, Kennedy B, Connell F, Kawachi I. Teen births, income inequality, and social capital: developing an understanding of the causal pathway. <i>Health Place.</i> 2002 Jun;8(2):77-83.</p> <p>Steptoe A, Kunz-Ebrecht S, Owen N, Feldman PJ, Rumley A, Lowe GD, Marmot M. Influence of socioeconomic status and job control on plasma fibrinogen responses to acute mental stress. <i>Psychosom Med.</i> 2003 Jan-Feb;65(1):137-44.</p>   |
| #6<br>Thu<br>Jan 20 | <p><b>Selecting a Study Design (part 1): NLS</b></p> <ol style="list-style-type: none"> <li>1. Units of analysis and multi-level designs</li> <li>2. Randomized group interventions</li> <li>3. Longitudinal designs</li> <li>4. Other designs</li> </ol> <p><b>Required Readings:</b></p> <p>Diez-Roux AV. Bringing context back into epidemiology: variables and fallacies in multilevel analysis. <i>Am J Public Health.</i> 1998;88:216-22.</p> <p>Koepsell TD. "Epidemiologic issues in the design of community intervention trials." Chapter 6 in: Brownson RC, Petitti DB. <i>Applied Epidemiology: Theory to Practice.</i> New York: Oxford University Press, 1998 (pp. 177-211).</p> <p>Kuh D, Ben-Shlomo Y, Lynch J, Hallqvist J, Power C. Life course epidemiology. <i>J Epidemiol Community Health</i> 2003;57:778-83.</p> <p><b>Additional Resources:</b></p> <p>Ben-Shlomo Y, Kuh D. A life course approach to chronic disease epidemiology: conceptual models, empirical challenges and interdisciplinary perspectives. <i>Int J Epidemiol</i> 2003;31:285-93.</p> <p>Campbell DT, Stanley JC. <i>Experimental and Quasi-Experimental Designs for Research.</i> Chicago: R. McNally, 1966 (pp. 34-46).</p> <p>“Evaluating the Effects of Policies on Health.” In Koepsell TD, Weiss NS. <i>Epidemiologic Methods: Studying the Occurrence of Illness.</i> Oxford; New York: Oxford University Press, 2003.</p>  |

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| <p><b>#7</b><br/><b>Tue</b><br/><b>Jan 25</b></p> | <p><b>Selecting a Study Design (part 2): NLS</b><br/><b>Required Readings:</b><br/>See session #5</p> <p>► <b>Distribute homework assignment #2</b></p>  |
| <p><b>#8</b><br/><b>Thu</b><br/><b>Jan 27</b></p> | <p><b>Measurement Issues: SAAB</b></p> <ol style="list-style-type: none"> <li>1. List, describe and compare the advantages and limitations of commonly used group/neighborhood measures in SDH research.</li> <li>2. Describe how measures are selected to represent concepts at the group level.</li> <li>3. Compare and contrast individual and group level measures of the same construct, and describe the relationship between them.</li> <li>4. Explain the different types of validity, and describe approaches to validating common index measures of exposure and outcome in SDH research.</li> </ol> <p><b>Required Readings:</b><br/>Diez-Roux AV, Nieto J, Muntane C et al. Neighborhood environments and coronary disease: a multilevel analysis. <i>Am J Epidemiol</i> 1997;146:48-63.<br/>Messer LC and Kaufman JS. Using census data to approximate neighborhood effects in <i>Methods in Social Epidemiology</i> edited by Oakes JM and Kaufman JS. 2006 John Wiley and Sons. Pg 209-236.</p> <p><b>Additional Resources:</b><br/>Armstrong BK, White E, Saracci R. Principles of exposure measurement in epidemiology. New York, Oxford University Press. 1992; chapter 1: pp1-21.<br/>Mathers CD, Murray CJL, Ezzati M, Gakidou E, Salomon JA, Stein C. Population health metrics: crucial inputs to the development of evidence for health policy. <i>Population Health Metrics</i> 2003;1:6<br/><a href="http://www.pophealthmetrics/content/1/1/6">http://www/pophealthmetrics/content/1/1/6</a></p> |
| <p><b>#9</b><br/><b>Tue</b><br/><b>Feb 1</b></p>  | <p><b>Journal Article Critique #2: Study Design and Measurements</b></p> <p>Costello EJ, Compton SN, Keeler G, Angold A. Relationships between poverty and psychopathology: a natural experiment. <i>JAMA</i>. 2003;290:2023-9.<br/>Galea S, Ahern J, Vlahov D, Coffin PO, Fuller C, Leon AC, Tardiff K. Income distribution and risk of fatal drug overdose in New York City neighborhoods. <i>Drug Alcohol Depend</i>. 2003;70(2):139-48.<br/>Phillips DP, Liu GC, Kwok K, Jarvinen JR, Zhang W, Abramson IS. The Hound of the Baskervilles effect: natural experiment on the influence of psychological stress on timing of death. <i>BMJ</i>. 2001;323(7327):1443-6.</p> <p>► <b>Homework assignment #2 due</b></p>  |
| <p><b>#10</b><br/><b>Thu</b><br/><b>Feb 3</b></p> | <p><b>Ecologic Data (Analytic Issues part 1): Adam A. Szpiro, PhD</b></p> <ol style="list-style-type: none"> <li>1. General issues of ecologic data structure and analyses including limitations of interpretation when analyzing potentially confounded data</li> <li>2. Application of within population sampling to estimate confounding effects of the larger group</li> </ol> <p><b>Required Readings:</b><br/>Diez Roux AV. The study of group-level factors in epidemiology: rethinking variables, study designs, and analytical approaches. <i>Epidemiol Rev</i>. 2004;26:104-11<br/>Freedman D.A. "Ecological inference and the ecological fallacy." <i>International Encyclopedia for the Social and Behavioral Sciences</i>. Elsevier (2001) vol. 6 pp. 4027–30. N. J. Smelser and Paul B. Baltes, eds.<br/>Morgenstern, H. (1998). Ecologic Studies. In Rothman, K.J. and Greenland, S. (Eds.), <i>Modern Epidemiology, Second Edition</i>, pp. 459-480. Lipincott-Raven.</p> <p><b>Additional Resources:</b><br/>Greenland S. Ecologic versus individual-level sources of bias in ecologic estimates of contextual health effects. <i>Int J Epidemiol</i> 2001;30:1343-50.<br/>Greenland S. A review of multilevel theory of ecologic analyses. <i>Stats Med</i> 2002;21:389-95.</p>  |

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| <p><b>#11</b><br/><b>Tue</b><br/><b>Feb 8</b></p>  | <p><b><i>Multi-level Data (Analytic Issues part 2): Kenneth M. Rice, PhD</i></b></p> <ol style="list-style-type: none"> <li>1. Understand basic approaches to analyzing multi-level data using hierarchical models</li> <li>2. Become familiar with other analytic methods to address multi-level data</li> </ol> <p><b><i>Required Readings:</i></b><br/> Duncan C, Jones K, Moon G. Context, composition and heterogeneity: Using multilevel models in health research. <i>Soc Sci Med</i> 1998; 46:97-117. (especially pages 97-105; 112-114)<br/> Diez-Roux AV. A glossary for multilevel analysis. <i>Journal of Epidemiology and Community Health</i> 2002; 56: 588-594.<br/> Diez-Roux AV. Multilevel analysis in public health research. <i>Annual Review of Public Health</i> 2000; 21:171-92.<br/> Blakely TA, Woodward AJ. Ecological effects in multi-level studies. <i>Journal of Epidemiology and Community Health</i> 2000;54:367-374.</p>   |
| <p><b>#12</b><br/><b>Thu</b><br/><b>Feb 10</b></p> | <p><b><i>Social Status and Health Disparities: SAAB</i></b></p> <ol style="list-style-type: none"> <li>1. Identify the conceptual origins of social stratification</li> <li>2. List, describe and compare the common indicators of socioeconomic position</li> <li>3. Compare and contrast measures of social position (class) at the individual and area levels</li> <li>4. Distinguish measures of poverty at the individual and family levels</li> <li>5. Describe the current social inequalities in health (observable differences in health among individuals of different social groups) and summarize recent trends</li> </ol> <p><b><i>Required Readings:</i></b><br/> Lynch J, Kaplan G. "Socioeconomic position." In Berkman LF and Kawachi I. <i>Social Epidemiology</i>. New York, Oxford University Press 2000. pp 13- 35.<br/> Raudenbush SW. "The quantitative assessment of neighborhood social environments." In Kawachi I and Berkman LF. <i>Neighborhoods and Health</i>. New York, Oxford University Press. 2003. Pp 112-131.<br/> Oakes JM and Rossi PH. The measurement of SES in health research: current practice and steps toward a new approach. <i>Soc Sci Med</i> 2003;56:769-784.</p> |
| <p><b>#13</b><br/><b>Tue</b><br/><b>Feb 15</b></p> | <p><b><i>Confounding &amp; Effect Modification with Multi-level Data (Analytic Issues part 3): Lianne Sheppard, PhD</i></b></p> <ol style="list-style-type: none"> <li>1. General issues of confounding in multi-level research studies</li> <li>2. General issues of effect modification in multi-level research studies</li> </ol> <p><b><i>Required Readings:</i></b><br/> See session #11.</p>  |
| <p><b>#14</b><br/><b>Thu</b><br/><b>Feb 17</b></p> | <p><b><i>Network Analyses and Review of Multi-level Analysis (Analytic Issues part 4): NLS</i></b></p> <ol style="list-style-type: none"> <li>1. Overview of network analyses and its application to SDH research</li> <li>2. Review of multi-level data analysis</li> </ol> <p><b><i>Required Readings:</i></b><br/> Luke DA, Harris JK. Network Analysis in Public Health: History, Methods, and Applications. <i>Annu Rev Public Health</i> 2007;28:69-93.<br/> Wylie JL, Cabral T, Jolly AM. Identification of networks of sexually transmitted infection: a molecular, geographic, and social network analysis. <i>J Infect Dis</i> 2005;191:899-906.</p> <p><b><i>Additional Resources:</i></b><br/> Marsden P. "Network methods in social epidemiology" in <i>Methods in Social Epidemiology</i> edited by Oakes JM and Kaufman JS. 2006 John Wiley and Sons. Pg 267-286.</p> <p>► <b>Distribute homework assignment #3</b></p>  |



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| <p><b>#15</b><br/><b>Tue</b><br/><b>Feb 22</b></p> | <p><b>Journal Article Critique #3: Multi-level Research Studies</b></p> <p>Stafford M, Cummins S, Macintyre S, Ellaway A, Marmot M. Gender differences in the associations between health and neighbourhood environment. <i>Soc Sci Med</i> 2005;60:1681-92.</p> <p>Merlo J, Ostergren PO, Hagberg O, Lindstrom M, Lindgren A, Melander A, Rastam L, Berglund G. Diastolic blood pressure and area of residence: multilevel versus ecological analysis of social inequity. <i>J Epidemiol Community Health</i>. 2001;55:791-8.</p>   |
| <p><b>#16</b><br/><b>Thu</b><br/><b>Feb 24</b></p> | <p><b>Longitudinal Data (Analytic Issues part 5): Gary Chan, PhD</b></p> <ol style="list-style-type: none"> <li>1. Understand the general issues of longitudinal data analysis using follow-up data from long-standing cohorts</li> <li>2. Identify threats to validity when using longitudinal data</li> <li>3. Identify analytic techniques to evaluate robustness of findings</li> </ol> <p><b>Required Readings:</b></p> <p>“Longitudinal Data Analysis” in <i>Biostatistics: A Methodology for the Health Sciences, Second Edition</i> by van Belle G, Fisher LD, Heagerty PJ, and Lumley T. 2004 John Wiley and Sons, Inc. Pg 728-765.</p> <p>► <b>Homework assignment #3 due</b></p>  |
| <p><b>#17</b><br/><b>Tue</b><br/><b>Mar 1</b></p>  | <p><b>Geography &amp; Neighborhood and Longitudinal Data Review (Analytic Issues part 6): NLS</b></p> <ol style="list-style-type: none"> <li>1. Overview of the analyses of data collected at the level of geography and neighborhood</li> <li>2. Review of longitudinal data analysis and provide homework</li> </ol> <p><b>Required Readings:</b></p> <p>Weiss L, Ompad D, Galea S, Vlahov D. Defining neighborhood boundaries for urban health research. <i>Am J Prev Med</i> 2007;32(6 Suppl):S154-9.</p> <p>Mujahid MS, Diez Roux AV, Morenoff JD, Raghunathan T. Assessing the measurement properties of neighborhood scales: from psychometrics to ecometrics. <i>Am J Epidemiol</i> 2007;165:858-67.</p> <p>Messer LC. Invited commentary: Beyond the metrics for measuring neighborhood effects. <i>Am J Epidemiol</i> 2007;165:868-71.</p> <p>Diez Roux AV, Mujahid MS, Morenoff JD, Raghunathan T. Response to “Beyond the metrics for measuring neighborhood effects.” <i>Am J Epidemiol</i> 2007;165:872-3.</p> <p><b>Additional Resources:</b></p> <p>Lovasi GS, Moudon AV, Smith NL, Lumley T, Larson EB, Sohn DW, Siscovick DS, Psaty BM. Evaluating options for measurement of neighborhood socioeconomic context: Evidence from a myocardial infarction case-control study. <i>Health Place</i>. 2007 Sep 21 [Epub ahead of print]</p> <p>► <b>Distribute homework assignment #4</b></p> |
| <p><b>#18</b><br/><b>Thu</b><br/><b>Mar 3</b></p>  | <p><b>Journal Article Critique #4: Longitudinal</b></p> <p>Mendes de Leon CF, Glass TA, Berkman LF. Social engagement and disability in a community population of older adults: the New Haven EPESE. <i>Am J Epidemiol</i> 2003;157:633-42.</p> <p>Shi L, Macinko, J. Starfield, B. Xu, J. Politzer, R. Primary care, income inequality, and stroke mortality in the United States: a longitudinal analysis, 1985-1995. <i>Stroke</i> 2003;34:1958-64.</p>   |

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| <p><b>#19</b><br/><b>Tue</b><br/><b>Mar 8</b></p>    | <p><b>Structural Equation Models (Analytic Issues part 7) and Course Review</b></p> <p>1. General issues of structural equation modeling</p> <p><b>Required Readings:</b><br/>Husler G, Plancherel B, Werlen E. Psychosocial predictors of cannabis use in adolescents at risk. <i>Prev Sci</i> 2005;6:237-244.<br/>Shipley B. <i>Cause and correlation in biology: a user's guide to path analysis, structural equations, and causal inference</i>. "Path analysis and maximum likelihood" (chapter 4), Cambridge University Press, 2000, pp 100-135.</p> <p><b>Additional Resources:</b><br/>Pearl J. <i>Causality: Models, Reasoning, and Inference</i>. "Causality and Structural Models in Social Science and Economics" (Chapter 5), Cambridge: Cambridge University Press, 2000, pp 133-139.<br/>Kramer MS, Goulet L, Lydon J, Seguin L, McNamara H, Dassa C, Platt RW, Chen MF, Gauthier H, Genest J, Kahn S, Libman M, Rozen R, Masse A, Miner L, Asselin G, Benjamin A, Klein J, Koren G. Socio-economic disparities in preterm birth: causal pathways and mechanisms. <i>Paediatr Perinat Epidemiol</i>. 2001;15:104-23.</p> <p>► <b>Homework assignment #4 due</b></p> |
| <p><b>#20</b><br/><b>Thu</b><br/><b>Mar 10</b></p>   | <p><b>Journal Article Critique #5: General Overview</b></p> <p>Coulton CJ, Korbin JE, Su M. Neighborhoods and child maltreatment: a multi-level study. <i>Child Abuse Negl</i>. 1999;23:1019-40.<br/>Hillemeier MM, Lynch J, Harper S, Raghunathan T, Kaplan GA. Relative or absolute standards for child poverty: a state-level analysis of infant and child mortality. <i>Am J Public Health</i>. 2003;93:652-7.</p> <p>► <b>Distribute final journal article for critique</b></p>   |
| <p><b>Final</b><br/><b>Mon</b><br/><b>Mar 14</b></p> | <p>► <b>Written journal article critique due at 9:00 am</b></p>  |