

**School of Public Health
University of California, Berkeley**

PH 210D: Reproductive and Perinatal Epidemiology

SPRING SEMESTER, 2007
Thursdays, 12-2 PM
2319 Tolman
2 units

Instructor: Kim Harley, Ph.D.
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Office hours: Thursday 2:00 - 3:30 in 773 University Hall (or by appointment)

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Purpose: This course will provide students with the foundations of research methods and issues encountered in reproductive and perinatal research. Specific objectives are:

1. To review epidemiologic methods in maternal and child health and the specific strengths and limitations of these methods;
2. To familiarize the student with the epidemiology of specific reproductive outcomes including their risk factors and prevalence;
3. To critique scientific literature;
4. To learn the fundamentals of grant writing.

Required Reading:

Readings are assigned for each week. Please refer to syllabus.

There is no reader for this course. All readings are posted on the course website at <http://bspa.berkeley.edu> and are on reserve at the Public Health Library

Additional resources:

1. Friedman G. Primer of Epidemiology. McGraw Hill, 4th Edition, 1994. (On reserve in the Public Health Library.)
2. Bracken MB. Perinatal Epidemiology. Oxford University Press, New York, 1984. (On reserve in the Public Health Library.)
3. Kline J. Conception to Birth: Epidemiology of Prenatal Development. Oxford University Press, New York, 1989. (On reserve in the Public Health Library.)

4. Kiely M. Reproductive and Perinatal Epidemiology. CRC Press, 1991. (On reserve in the Public Health Library.)
5. Källén B. Epidemiology of Human Reproduction. CRC Press, 1988. (On reserve in the Public Health Library.)

Requirements:

1. All students will be required to read the assigned articles and be prepared to discuss them in class.
2. Working in teams of two, students will make a presentation to the class related to the research question for their grant proposal. (Both members of a team must take the course for a grade or for P/NP). Each team will present a summary table of the literature related to that research question; the methods they think they would use to address the question; and questions and difficulties already confronted or anticipated in designing the research project. A laptop computer and LCD projector will be provided for PowerPoint presentations or students may borrow an overhead projector from the MCH department.
3. Each student team will write a mini (5 to 6 single-spaced pages) grant proposal on a specific topic in reproductive and perinatal epidemiology. The proposal should include: specific aims; background and significance (short literature review); previous research; and, detailed methodology (including participants, materials, data analysis strategy, sample size estimates), human subjects considerations, budget, and budget justification (budget and budget justification not included in 6 page limit).

Grading:

Class participation	10%
Presentations	35%
Grant proposal	55%

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Date Instructor Topic and Readings

- 1/18 Harley & Goldman
- 1) Review of course, requirements and assignments.
 - 2) Selecting a research question: defining independent and dependent variables
 - 3) Epidemiology review

Readings:

- 1) Hogue CJR et al. An introduction to epidemiologic methods
- 2) (p 585-601) Weinberg, CR and Wilcox AJ “Reproductive Epidemiology” in: Rothman K and Greenland S (eds). *Modern Epidemiology (second edition)*.
- 3) Savitz et al. Epidemiologic Measures of the course and outcome of pregnancy

- 1/25 Harley
- 1) Introduction to NIH grant-writing
 - 2) Ethical issues in reproductive epidemiology: Implications for designing studies

Assignment: Come to class prepared with a few research question ideas for your grant proposal

Readings:

- 1) Top 10 Tips For Successful Grantsmanship
- 2) The Art of Grantsmanship http://www.utoronto.ca/cip/sa_ArtGt.pdf
- 3) Public Health Service Grant Application <http://grants1.nih.gov/grants/funding/phs398/phs398.html#forms>
- 4) Guidelines of the Committee for Protection of Human Subjects, Berkeley Campus: <http://cphs.berkeley.edu:7006/content/forms.htm>
- 5) Coughlin SS and Beauchamp TL. Ethics, scientific validity and the design of epidemiologic studies.
- 6) American College of Epidemiology Ethics Guidelines

- 2/1 Harley
- Reproduction: Male and Female Fertility

Assignment: Submit research question for grant in pairs

Readings:

- 1) Joffe M and Barnes I. Do Parental factors affect male and female fertility?
- 2) Carlsen et al. Evidence for decreasing quality of semen during past 50 years.
- 3) Auger J et al. Decline in semen quality among fertile men in Paris during the past 20 years.

- 4) Swan et al. The question of declining sperm density revisited: An analysis of 101 studies published 1934-1996.
- 5) Eskenazi et al. The association of age and semen quality in healthy men.

2/8 Marcy Warner, PhD
SPH, UCB

Reproduction: Female Fertility (cont.) – Endometriosis/Fibroids

Readings:

- 1) Baird DD et al. High cumulative incidence of uterine leiomyoma in black and white women: Ultrasound evidence.
- 2) Schwartz SM, Marshall LM and Baird DD, Epidemiologic Contributions to understanding the etiology of uterine leiomyomata.
- 3) Eskenazi BE, et al. Serum dioxin concentrations and risk of uterine leiomyomata in the Seveso Women’s Health Study.
- 4) Olive DL, Schwartz LB. Endometriosis.
- 5) Eskenazi BE, et al. Serum dioxin concentrations and endometriosis: a cohort study in Seveso, Italy

Optional readings (on reserve):

- 1) Houston DE, et al. “Incidence of pelvic endometriosis in Rochester, Minnesota.”
- 2) Eskenazi BE, Warner ML. “Epidemiology of endometriosis.”

2/15 Harley

Reproduction: Spontaneous abortion – recognized and unrecognized loss

Readings:

- 1) (p 585-601) Weinberg, CR and Wilcox AJ “Reproductive Epidemiology” in: Rothman K and Greenland S (eds). *Modern Epidemiology (second edition). (in Lecture 1)*
- 2) Wilcox AJ, et al. “Incidence of early loss of pregnancy.”
- 3) Fenster L, Eskenazi B, Windham GC and Swan SH. Caffeine consumption during pregnancy and spontaneous abortion.
- 4) Stein Z and Susser M. Miscarriage, caffeine, and the epiphenomena of pregnancy: the causal model
- 5) Fenster L et al. Miscarriage, caffeine, and the epiphenomena of pregnancy: the causal model.

Optional Readings (on reserve):

Eskenazi, et al. “Prospective monitoring of early fetal loss and clinical spontaneous abortion among female semiconductor workers.”

2/22 Ray Catalano, PhD
SPH, UC Berkeley

Neonatal Health: Stress and Birth Outcome – Variations in time

Readings:

- 1) Hedegaard et al. Do stressful life events affect duration of gestation and risk of preterm delivery?
- 2) Dole et al. Maternal Stress and Preterm Birth

- 3) Catalano R, Hartig, T. Communal bereavement and the incidence of very low birthweight in Sweden.
- 4) Catalano et al. Sex ratios in California following the terrorist attacks of September 11, 2001.

3/1	Nancy Padian, PhD and Ali Minnis, PhD Women's Global Health Imperative, UCSG	Reproduction: HIV and STIs Readings: TBA
3/8	Harley & Paul English, PhD Environmental Health Investigations Unit, DHS	Neonatal Health: Birthweight – Variations in Space Readings: <ol style="list-style-type: none"> 1) Wilcox AJ and Russell IT. “Birthweight and perinatal mortality: I. On the frequency distribution of birthweight. 2) Wilcox AJ and Russell IT. “Why small black infants have a lower mortality rate than small white infants: The case for population-specific standards for birth weight.” 3) Wilcox, A. On the importance- and the unimportance- of birthweight. 4) David, R. Commentary: Birthweights and bell curves. 5) Hertz-Picciotto, I. Commentary: When brilliant insights lead astray. 6) Wilcox, A. Response: Where do we go from here? 7) English PB, Kharrazi M, Davies S, Scalf R, Waller L, Neutra R. Changes in the spatial pattern of low birth weight in a southern California County: The role of individual and neighborhood level factors.
3/15	Gary Shaw, DrPH CA Birth Defects Monitoring Program	Neonatal health: Birth defects Readings: <ol style="list-style-type: none"> 1) Shaw GM et al. Genetic variation of infant reduced folate carrier (A80G) and risk of orofacial and conotruncal heart defects 2) Lammer EJ et al. Maternal smoking and the risks of orofacial clefts: susceptibility with NAT1 and NAT2 polymorphisms. 3) Shaw GM et al. Periconceptional dietary intake of choline and betaine and neural tube defects.
3/22	Lisa Croen, PhD Division of Research, Kaiser	Child Health: Autism Readings: TBA

3/29 Spring Break

4/5 May Wang, PhD
SPH, UC Berkeley
Child Health: Childhood Obesity
Readings:
TBA

4/12 Student Presentations and class discussion of research proposals.

4/19 Student Presentations and class discussion of research proposals.

4/26 Student Presentations and class discussion of research proposals.

5/3 Student Presentations and class discussion of research proposals.

Assignment: Final Grant Proposals Due (Due date for groups presenting on final day of class is 5/10)