

**Population Health Sciences 802, 3 credits
Advanced Epidemiology, Etiology, and Prevention
Fall 2012 Syllabus**

Lecture: Tuesdays and Thursdays 1:00 – 2:15 in WARF 758

Course goals

The primary goals for this course are to:

- Understand and gain familiarity with selected advanced epidemiologic methods topics regarding:
 - Bias in observational studies
 - Observational study designs
 - Disease prevention/health promotion

- Apply methodologic knowledge to selected key activities of a practicing epidemiologic researcher, including:
 - Scientific writing
 - Grant writing
 - Manuscript reviewing
 - Study implementation

Instructor information

Paul E. Peppard, PhD
Assistant Professor (PHS)
WARF room 685
Tel: 26 2-2680
ppeppard@wisc.edu
Office hours: by appointment

Teaching assistant information

Anna G. Mirer, MPH
MD/PhD (PHS) student
WARF room 636
Tel: 26 2-6321
amirer@wisc.edu
Office hours: after class...

Grading

- ★ 10% Attendance/participation: 100 total points
 - Attendance: points per class —
Absent=0, “Excused absence”=2, Present=3
(Absence due to illness, family emergency or similar won’t affect attendance grade, i.e., points will be imputed based on non-sick attendance record).
 - Remaining points will be based on class participation.
 - ★ 30% Three assignments/mini-projects: 300 points (3 @ 100 each)
 - ★ 30% Bias project: 300 points (100 for presentation, 200 for paper)
 - ★ 15% Manuscript review assignment: 150 points
 - ★ 15% In-class quiz: 150 points
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- Please notify me within the first two weeks of class of specific dates on which you may need to miss class for religious observances.
 - Late assignments will be deducted 5 points for each day late.

Collaborative environment & academic misconduct: I encourage students to discuss course material and content with each other. However, unless otherwise indicated, I will assume that your assignments are representative of your own work. Individual written assignments must be in your own words and should not be substantially similar to another student's work. Statements of fact should be accompanied by a reference; statements without references are assumed to be your own conclusions. Please refer to this website if you have questions about student misconduct: <http://www.wisc.edu/students/saja/misconduct/misconduct.html>

Discrimination: The UW–Madison is committed to creating a dynamic, diverse and welcoming learning environment for all students and has a non-discrimination policy that reflects this philosophy. Disrespectful behaviors or comments addressed towards any group or individual, regardless of age, race/ethnicity, sexuality, gender, religion, ability, or any other difference are unacceptable in this course.

Disabilities: I wish to fully include persons with disabilities in this course. Please let me know if you need any special accommodations in the curriculum, instruction, or assessments of this course to enable you to fully participate.

Learn@UW: Course information, required readings and other helpful materials will be distributed on the course website at <http://learnuw.wisc.edu>. All students are expected to routinely log into the course site. The course site will contain the updated syllabus as well as other course information. (If you notice inconsistencies or misspellings, if you have trouble accessing anything, or if you would like to propose improvements, please email me—ppeppard@wisc.edu).

Readings

- The following two textbooks are strongly recommended:
 - Szklo M and Nieto FJ. Epidemiology: Beyond the Basics, 2nd ed. Jones and Bartlett, 2007.
 - Rothman KJ, Greenland S, Lash TL. Modern Epidemiology, 3rd ed. Lippincott Williams & Wilkins, 2008.
- Also recommended:
 - Kelsey JL. Methods in Observational Epidemiology, 2nd Ed. Oxford University Press, 1996.
 - Rose, G. Rose's Strategy of Preventive Medicine. Oxford University Press, 2008. (with "commentary" by Kay-Tee Khaw and Michael Marmot.)
 - White E, Armstrong BK, Saracci R. Principles of Exposure Measurement in Epidemiology: Collecting, Evaluating, and Improving Measures of Disease Risk Factors, 2nd Ed. Oxford University Press, 2008.
- Most required and recommended readings—typically journal articles and book chapters—will be available on the course website. Please check the course website routinely for these materials.

Course Schedule (minor adjustments throughout semester can be expected)

Wk	Date	Module	Lecturer	Topics	Readings (read by class)	Assignment
1	9/4 tues	Introduction	Peppard	Syllabus-Intro-Quiz	R,G&L: Ch.2; Taubes: Epi at the limits, Science 1995	Be prepared to discuss Taubes article on 9/6
	9/6 thurs			Limits of epidemiology; Epi part of a larger process		
	9/11 tues			Sleep epidemiology example		
2	9/13 thurs	Bias: selection bias	Peppard	Selection and related biases: following subjects over time	Review, S&N Ch.4; Ware (pulmonary ftm) Newshaffer (cholesterol); Vaupel & Yashin (survival); Howard (RR's in elderly); Vilaprinoyo (competing risks, breast cancer)	Selection simulation assignment (I)
3	9/18 tues					
4	9/20 thurs	Bias: confounding	Peppard	Confounding history; causal diagrams; instrumental variables; Mendelian randomization	RG&L: Ch. 12 (causal diagrams); Vandembroucke (history of confounding); Lewis et al & Thanassoulis et al. & commentary (Mendelian randomization eg's)	Just the readings
	4					
5	9/27 thurs	Bias: measurement error & related	Peppard	Validation studies, characterizing validity; regression to the mean, etc	S&N 8.4 (indices of validity/reliability); Dietz et al + Yu et al + Heckbert et al (validation study examples); Barnett et al (regr. to the mean)	Validation study readings write-up (II)
	5					
6	10/4 thurs	Study design	Peppard/ students	Class discussion of validation study papers	R,G&L: Ch.8, pp 122-127; (case-control variants); Ch.25 (ecologic); Ch.33.	Just the readings
	6					
7	10/11 thurs	Prevention	Peppard	Prevention	Commentary + Ch 1&2 from Rose's Strategy of Preventive Medicine	Prevention assign. (III)
	7					
8	10/18 thurs	Methods project	Peppard	Methods project description—students rank bias project options;	Manuscript to review...	
	8					
9	10/25 thurs	Grant-writing	Trentham-Dietz	Grant writing/reviewing for NIH	Amy's grant materials	Manuscript review
	9					
10	11/1 thurs	Reviewing manuscripts	Peppard/ students	Class Manuscript Review		Manuscript review
	10					
11	11/8 thurs	Presenting data	Mirer	Presenting data	S&N: Ch.9 (presenting data)	...methods project...
	11					
12	11/12 thurs	Study Implementation	Peppard	A bit more on grant writing; Protocol development; Study administration	R,G&L: Ch. 24 (field methods in epidemiology);	...methods project...
	12					
13	11/20 tues	Study Implementation	Peppard	Recruitment, follow-up and tracking - I	Edwards et al (increasing response rates meta-analysis)	...methods project...
	13					
14	11/22 thurs	Implementation	Peppard	Recruitment, follow-up and tracking, special populations - II	TBD	...methods project...
	14					
15	11/27 tues	Methods project presentations	Students	Methods project: student reports		Methods project oral reports
	15					
No class: give thanks						
16	12/4 tues	Implementation	Peppard	Data collection methods, questionnaire design	Kelsey Ch 14 (Questionnaires) & 15 (Other measurements); Peruse SHOW QxQ	...methods paper...
	16					
17	12/11 tues	Implementation	Nieto	Protocol implementation, staff, quality assurance	S&N 8.1 (Intro); 8.2 (quality assurance),	...methods paper...
	17					
18	12/18 tues	Implementation	Martinez-Donate	Study implementation in the developing world -- Mexico	TBD	...methods paper...
	18					
19	12/27 tues	Implementation	Peppard	Data Issues, Wrap up and Pep talk	S&N 8.3 (quality control)	...methods paper...
	19					
20	12/31 tues	Implementation	Sethi	Study implementation in the developing world -- Uganda	TBD	Methods paper due
	20					
21	1/2 thurs	In-class quiz	Students	Quiz on selected modules		Study