Population Health Sciences 806
Advanced Epidemiology: The Practice of Epidemiology (3 credits)
Spring 2018

Syllabus version 1.0 (course schedule subject to change)

Course URL: 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.

Course Designations and Attributes: Advanced epidemiology methods

Meeting Time and Location: Spring, Tuesdays & Thursdays 1:00 to 2:15PM, WARF 758

Instructional Mode: All face-to-face

Credit Hours: **3 =** ~150 min/week of direct faculty instruction and 6-8 hours of out of class student work each week over approximately 15 weeks

INSTRUCTOR:

Paul Peppard, PhD, Associate Professor, Population Health Sciences
WARF room 611A
Tel: 26 2-2680
ppeppard@wisc.edu

Office hours: by appointment

COURSE DESCRIPTION

The goals of the course are to apply and extend methodologic knowledge learned in prior courses in the Population Health Sciences epidemiology methods sequence (PHS 797, 798, 805; these are prerequisites) to selected key activities of a practicing epidemiologic researcher, including: study implementation; scientific writing and presentation; manuscript and grant peer-reviewing; measurement validation, simulation studies and sensitivity analyses; and, commonly-used epidemiology field instruments and methods.

Requisites: Graduate or professional standing

LEARNING OUTCOMES

Course Learning Outcomes: The primary objective of the course is to extend and apply methodologic knowledge learned in prior courses in the Population Health Sciences epidemiology methods sequence to selected key activities of a practicing epidemiologic researcher **to achieve these learning outcomes**:

- Students will be able to participate in a multi-disciplinary team to design and implement epidemiology studies
- Students will be able to design and interpret epidemiology validation studies
- Students will be familiar with commonly-used epidemiology field instruments and methods for assessing a wide range of specific health factors
- Students will be able to write clear and concise research articles
- Students will be able to contribute to scientific dissemination as peer reviewers

GRADING

★ 5% - Attendance/participation: 50 total points
  - Attendance: points per class — Present=2, "Excused absence"=1, Absent=0 (Absence due to illness, emergency, etc. won't affect attendance grade; points will be imputed based on non-sick attendance).
  - Remaining points will be based on class participation.

★ 30% - Two homework assignments: 300 points (2 @ 150 each)
★ 30% - Methods project: 300 points (100 for presentation, 200 for paper)
★ 15% - Manuscript review assignment: 150 points
★ 20% - In-class quizzes: 200 points (2 @ 100 each)

- Please notify instructor 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.
- ***Grade distribution***: **A**: 93-100% **AB**: 88-92.9%
  B: 83-87.9% **BC**: 78-82.9%
  C: 70-77.9% **D**: 64-69.9% **F**: <64%

REQUIRED TEXTBOOK & OTHER COURSE MATERIALS

The following textbooks are recommended:

- "WA&S" – 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.
- "S&N" – Szklo M and Nieto FJ. Epidemiology: Beyond the Basics, 3rd edition; Jones and Bartlett Learning, 2014.
- "RG&L" – Rothman KJ, Greenland S, Lash TL. Modern Epidemiology, 3rd ed. Lippincott Williams & Wilkins, 2008.
- Some of the readings will be available on the course website.

EXAMS, QUIZZES, PAPERS & OTHER GRADED WORK: see course schedule below

RULES, RIGHTS & RESPONSIBILITIES: See the Guide's to Rules, Rights and Responsibilities (this is the "Undergraduate Guide," but much applies to grad students too)

ACADEMIC INTEGRITY: By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to https://conduct.students.wisc.edu/academic-integrity/

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES – McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA." http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

DIVERSITY & INCLUSION – Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." https://diversity.wisc.edu/

Religious Reasonable Accommodation Policy: Dr. Peppard will try to reasonably and fairly accommodate all students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance, provided advance notification of the conflict is given. Whenever possible, students should give at least one week notice to request special accommodation.

CLASS CANCELLATION NOTICES: Rarely, severe weather, illness, or other circumstances may require cancellation of a class. If this is so, Dr. Peppard will inform students via an email notice sent to the class email list. It will be the responsibility of each class member to ensure that they check the email that they used for their course registration for such a message.

Schedule (likely to undergo minor revisions)

Week 1: Jan. 23 & 25 **Module**: **Introduction** **Topics**: • Syllabus-Intro-Quiz • Limits of epidemiology • Epidemiology as part of a broader scientific process	**Instructor**: Peppard **Readings**: • R,G&L: Ch.2; • Taubes: Epidemiology at the limits **Assignment**: Prepare to discuss Taubes article
Week 2: Jan. 30 & Feb. 1 **Module: Following Cohorts Over Time** **Topics**: • Period, cohort, selection effects	**Instructor**: Peppard **Readings**: Newshaffer (cholesterol); Vaupel (survival); Howard (RR's in elderly) **Assignment**: Selection simulation (HW#1)
Week 3: Feb. 6 & 8 **Module: Measurement Validity** **Topics**: • Characterizing validity • Validation studies • Regression to the mean	**Instructor**: Peppard **Readings**: S&N-8.4 (indices of validity); WA&S-Ch.4,5; Validation study readings (4); Barnett et al (regression to the mean) **Assignment**: Validation study write-up (HW#2)
Week 4: Feb. 13 & 15 **Topics:** • Overview of sleep epidemiology (for course project) • Course project description • **Grants**	**Instructor**: Peppard **Assignment**: Choose project topic
Week 5: Feb. 20 & 22 **Topics:** • **Grants** (continued) • **Presenting scientific data**	**Instructor**: Peppard **Readings**: S&N Ch. 9. Background articles for project
Week 6: Feb 27 & March 1 **Topics** • **Authorship** • **Peer-reviewing manuscripts**	**Instructors**: Peppard **Readings**: • Manuscript to review in week 7; • How-to-review-manuscripts articles **Assignment**: Peer review manuscript
Week 7: March 6 & 8 **Topics:** • **Peer-reviewing manuscripts** • **Sampling** (Dr. Palta)	**Instructor**: Peppard/students, Palta (March 8) **Assignment**: • In-class manuscript review (Mar. 6) • Project analysis

Week 8: March 13 & 15 **Module: Study Implementation 1 (start 2)** **Topics:** • **Quiz on first 7 weeks (March 13)** • **Personnel, budgets, etc.**	**Instructor**: Peppard **Readings**: • Background for course project; • R,G&L: Ch. 24 (field methods) **Assignment**: Project analysis
Week 9: March 20 & 22 **Module:** • **Gender & bias in academic settings** (Dr. Carnes), **Study Implementation 2** **Topics:** • Recruitment and retention	**Instructor**: Carnes (March 20), Peppard **Readings**: • TBD • Edwards et al paper; WA&S-Ch.11 **Assignment**: • Written manuscript review • Project analysis
Week 10: Spring Recess (March 24 - April 1)	
Week 11: April 3 & 5 **Module: Study Implementation 3, International Epi.** (Dr. Sethi) **Topics:** • Survey/questionnaire design • International studies (Dr. Sethi)	**Instructor**: Peppard, Sethi (April 5) **Readings**: • WA&S-Ch.6,7 • Background for course project **Assignment**: Project presentation preparation
Week 12: April 10 & 12 **Topics**: • **Study Implementation 3 (cont.)** • **Student project presentations**	**Instructors**: Peppard, Students **Readings**: none—prep for presentations **Assignment**: Project presentations (April 12)
Week 13: April 17 & 19 **Module: Common Instruments 1 & 2** **Topics:** • Sociodemographics; general, physical & mental health • Vital records and biomarkers	**Instructors**: Peppard **Assignment**: Project paper preparation
Week 14: April 24 & 26 **Module: Common Instruments 3 & 4** **Topics:** • Physical activity, sedentarism, sleep, habitus, diet	**Instructors**: Peppard **Readings**: Selections from WA&S **Assignment**: • Project paper preparation
Week 16: May 1 & 3 **Topics:** • **Quality Assurance/Control** • **Quiz on weeks 8-16**	**Instructor**: Peppard **Assignment/Readings**: • S&N: 8.2, 8.3;