

PubH 8300
Topics: Advanced Epidemiologic Methods Workshop
Fall 2017

Credits: 1
Meeting Days: Thursday
Meeting Time: 11:15-12:05
Meeting Place: Mayo A110
Instructor: Richard MacLehose, PhD
Office Address: 441 West Bank Office Building
Office Phone: 4-1932
Office Hours: By appointment

I. Course Description

This lab course accompanies PubH 8341: Advanced Epidemiologic Methods. The focus of this course is to gain practical experience with implementing the methods that are taught in PubH 8341. Methods that are explained in PubH 8341 will be implemented in this lab course. Students will be instructed in practical aspects of methodological implementation. Examples and readings are aimed at both clinical/biologic and social/behavioral track students.

II. Course Prerequisites

Students must be enrolled in PubH 8341 or have previously taken PubH 8341.

III. Course Goals and Objectives

Upon completion of this course the student should be able to:

- Estimate Standardized, Pooled and Stratified Effect Estimates
- Assess the presence of measurement bias, selection bias and confounding bias in epidemiologic data and understand their specific implications
- Assess exchangeability, positivity and consistency in epidemiologic studies.
- Evaluate effect modification and mediation in epidemiologic studies
- Relate effect measures, p-values, confidence intervals, power and type-I error via simulation

IV. Methods of Instruction and Work Expectations

The class will meet once a week. New topics will be covered each week. Students are required to attend each class having read the assigned material. Each class will consist of a brief lecture on implementation of a methodologic technique followed by in-class worked examples. Some examples will be worked on as a class while others will be small group projects. Analyses will be conducted both “by hand” using a spreadsheet program as well as in Stata. Detailed introduction for Stata will be provided in class. No prerequisite programming knowledge is required.

Homework will be given most weeks (10 total) to reinforce and extend topics discussed in class. Homework will be due in 1 week.

V. Course Text and Readings

Two texts are required:

Rothman, Kenneth J., Sander Greenland, and Timothy L. Lash. 2012. Modern Epidemiology, 3rd edition (mid-cycle revision). New York: Lippincott Williams & Wilkins. [Note: this 2012 mid-cycle revision is mostly the same as the 3rd edition from 2008]

Hernán MA, Robins JM. Causal Inference. Chapman & Hall/CRC, 2015. Available online at: <http://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/>

Additional readings will be assigned as needed

Readings in the course texts are denoted as ME3 and CI

VI. Course Outline/Weekly Schedule

WEEK	DATE	TOPIC	HOMEWORK
1	Sep 7	Introduction & Overview of Statistics	HW1 Assigned
Reading: ME3, Chapter 13			
2	Sep 14	Computing measures of frequency and association	HW2 Assigned; HW1 Due
Reading: ME3, Chapter 14			
3	Sep 21	Analytic methods for control of confounding, 1	HW3 Assigned; HW2 Due
Reading: ME3, Chapter 15 (through “standardization”)			
4	Sep 28	Analytic methods for control of confounding, 2	HW4 Assigned; HW3 Due
Reading: ME3, Chapter 15 (through “standardization”)			
5	Oct 5	Selection bias	HW5 Assigned; HW4 Due
Reading: CI, Chapter 8			
6	Oct 12	Measurement Bias	HW5 Due
Reading: Lash, Fink, Fox. Applying Quantitative Bias Analysis. Chapter 4			
7	Oct 19	No Class (Midterm in 8341)	
8	Oct 26	Analytic methods for effect modification and interaction	HW7 Assigned
Reading: ME3, Chapter 15 (following standardization), 16 (Analyses of Biologic Interactions)			
9	Nov 2	Probability and Statistics	HW8 Assigned; HW7 Due
Reading: ME3, Chapter 10			
10	Nov 9	P-values and tests	HW9 Assigned; HW 8 Due

Reading: ME3, Chapter 10

11	Nov 16	Estimation	HW 9 Due
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Reading: ME3, Chapter 10

12	Nov 23	THANKSGIVING – No Class	
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13	Nov 30	Case-Control Analysis, 1	HW10 Assigned
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Reading: ME3, Chapter 8

14	Dec 7	Case-Control Analysis, 2	HW10 Due
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Reading: ME3, Chapter 8

VII. Evaluation and Grading

Letter grades and associated points are awarded in this course as follows below. These will appear in the student’s official transcript. See <http://www1.umn.edu/usenate/policies/gradingpolicy.html> for details.

Pass/Fail Grading: An alternative to traditional A-F scale grades is the S/N grading scale. The “S” grade does not carry points but credit will count toward completion of student’s degree if permitted by college or program. An “N” is given for student’s exercising the S/N grading option but who fail to meet minimum course requirements. Students may change grading options without written permission as specified by the University and without penalty during the initial registration period or during the first two weeks of the semester. The grading option may not be changed after the second week of the term.

Each homework assignments (10) will be worth 10 points, resulting in 100 possible points in the class over the entire semester. The total number of points earned on homework divided by 100 will be used to calculate the “class points.” These class points will be mapped to letter grades as show in the table on the right.

Grade Mapping	
Letter Grade	Percentage
A	[94-100]
A-	[90-94]
B+	[87-90]
B	[83-87]
B-	[80-83]
C+	[77-80]
C	[73-77]
C-	[70-73]
S	[80-100]
N/F	-
I	-

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

Course Evaluation

The SPH will collect student course evaluations electronically using a software system called CourseEval: www.sph.umn.edu/courseeval. The system will send email notifications to students when they can access and complete their course evaluations. Students who complete their course evaluations promptly will be able to access their final grades just as soon as the faculty member renders the grade in SPHGrades: www.sph.umn.edu/grades. All students will have access to their final grades through OneStop two weeks after the last day of the semester regardless of whether they completed their course evaluation or not. Student feedback on course content and faculty teaching skills are an important means for improving our work. Please take the time to complete a course evaluation for each of the courses for which you are registered.

Incomplete Contracts

A grade of incomplete “I” shall be assigned at the discretion of the instructor when, due to extraordinary circumstances (e.g., documented illness or hospitalization, death in family, etc.), the student was prevented from completing the work of the course on time. The assignment of an “I” requires that a contract be initiated and completed by the student before the last official day of class, and signed by both the student and instructor. If an incomplete is deemed appropriate by the instructor, the student in consultation with the instructor, will specify the time and manner in which the student will complete course requirements. Extension for completion of the work will not exceed one year (or earlier if designated by the student’s college). For more information and to initiate an incomplete contract, students should go to SPHGrades at: www.sph.umn.edu/grades.

University of Minnesota Uniform Grading and Transcript Policy - A link to the policy can be found at onestop.umn.edu.

VIII. Other Course Information and Policies

Grade Option Change (if applicable)

For full-semester courses, students may change their grade option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester courses) can be found at onestop.umn.edu.

Course Withdrawal

Students should refer to the Refund and Drop/Add Deadlines for the particular term at onestop.umn.edu for information and deadlines for withdrawing from a course. As a courtesy, students should notify their instructor and, if applicable, advisor of their intent to withdraw.

Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Office of Admissions and Student Resources at sph-ssc@umn.edu for further information.

Student Conduct Code

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Use of Personal Electronic Devices in the Classroom

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference:

<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see:

<http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: <http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Makeup Work for Legitimate Absences

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see:

<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy:

<http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy: http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

Mental Health and Stress Management

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

The Office of Student Affairs at the University of Minnesota

The Office for Student Affairs provides services, programs, and facilities that advance student success, inspire students to make life-long positive contributions to society, promote an inclusive environment, and enrich the University of Minnesota community.

Units within the Office for Student Affairs include, the Aurora Center for Advocacy & Education, Boynton

Health Service, Central Career Initiatives (CCE, CDes, CFANS), Leadership Education and Development –Undergraduate Programs (LEAD-UP), the Office for Fraternity and Sorority Life, the Office for Student Conduct and Academic Integrity, the Office for Student Engagement, the Parent Program, Recreational Sports, Student and Community Relations, the Student Conflict Resolution Center, the Student Parent HELP Center, Student Unions & Activities, University Counseling & Consulting Services, and University Student Legal Service.

For more information, please see the Office of Student Affairs at <http://www.osa.umn.edu/index.html>.

Academic Freedom and Responsibility: for courses that do not involve students in research

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".

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