

PUBH 6350, SECTION 002

Epidemiologic Methods III: Laboratory
Fall 2019

COURSE & CONTACT INFORMATION

Credits: 1
Meeting Day(s): Wednesdays
Meeting Time: 11:15 – 1:10 p.m.
Meeting Place: Mayo A110

Instructor: Jim Pankow, PhD, MPH, Professor
Email: panko001@umn.edu
Office Phone: 612-624-2883
Office Hours: Mondays, 3:30 – 4:30 p.m. (only during weeks when lab is in session)
Office Location: A310 Mayo (regular office hours); 452 WBOB (other times)

Teaching Assistant: So Yun Yi, MPH
Email: yixxx250@umn.edu
Office Hours: Thursdays, 11:30-12:30
Office Hours Location: SPH SPHere

COURSE DESCRIPTION

This course is the companion course to PubH 6343 (Epidemiologic Methods III). It is a hands-on SAS programming course that provides an opportunity to implement data analysis techniques presented in 6343 using real data. In addition, students will learn how to create a slide presentation appropriate for a scientific meeting.

The contents of PubH 6350 were developed with the contributions of Drs. Pam Schreiner and Jim Pankow.

COURSE PREREQUISITES

The course is required for all MPH students in Epidemiology. It is designed as a companion course to PubH 6343, which should be taken either concurrently or previously (or its equivalent with permission of the instructor).

Prerequisites are PubH 6420 (Introduction to SAS Programming, 1 cr) or PubH 6325 (Data Processing with PC-SAS, 1 cr). Prerequisites also include PubH 6342 (Epidemiologic Methods II) and PubH 6451 (Biostatistics II). Permission of the instructor is needed for substitutions or exemptions.

For those wanting a more in-depth SAS programming class, PubH 6470 (SAS Procedures and Data Analysis, 3 cr) is an excellent alternative to PubH 6350.

COURSE GOALS & OBJECTIVES

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

- Connect the applied methods taught in PubH 6343 with actual data using the appropriate study designs and analytic techniques
- Conduct basic SAS programming for epidemiologic methods presented in PubH 6343
- Understand why the specific procedures taught are used, and interpret the results in an epidemiologic as well as a statistical context
- Examine crude data for outliers, data errors and distributional assumptions
- Debug SAS code when programs do not run correctly
- Prepare a scientific presentation with appropriate content, including introduction/background, methods, results and discussion

METHODS OF INSTRUCTION AND WORK EXPECTATIONS

PubH 6350 is a 1 credit course. The University expects that for each credit, students will spend a minimum of three hours per week attending class or comparable online activity, reading, studying, completing assignments, etc. over the course of a 15-week term. Thus, this course requires approximately 45 hours of effort spread over the course of the term in order to earn an average grade.

The class will meet every other week for two hours. Code will be presented in conjunction with the current topics in PubH 6343, homework will be reviewed, and practice time scheduled.

COURSE TEXT & READINGS

A textbook will not be used in this course. Online resources such as support.sas.com and stats.idre.ucla.edu/sas/ are helpful.

Laptop computers with SAS will be provided for use in class. Students may wish to purchase and install SAS on their own laptop by purchasing an individual student license through the University of Minnesota information technology site (\$48 for 1 year). Computers with SAS are also available in the School of Public Health SPHere.

COURSE OUTLINE/WEEKLY SCHEDULE

Week	Topic(s)	Activities/Assignments
Week 2 (September 11)	<ul style="list-style-type: none">• Introduction to SAS datasets• Linear regression	<ul style="list-style-type: none">• In-class problem set• Homework 1 assigned
Week 4 (September 25)	<ul style="list-style-type: none">• Tabular methods	<ul style="list-style-type: none">• Introduction to data analysis project• In-class problem set• Homework 2 assigned
Week 6 (October 9)	<ul style="list-style-type: none">• Logistic regression: basics, confounding, independent predictors, effect modification	<ul style="list-style-type: none">• In-class problem set• Homework 3 assigned
Week 8 (October 23)	<ul style="list-style-type: none">• Logistic regression: indicator coding and tests of statistical significance	<ul style="list-style-type: none">• In-class problem set• Homework 4 assigned
Week 10 (November 6)	<ul style="list-style-type: none">• Ordinal and polytomous regression	<ul style="list-style-type: none">• In-class problem set• Homework 5 assigned
Week 12 (November 20)	<ul style="list-style-type: none">• Incidence density coding• Kaplan-Meier plots• Cox regression	<ul style="list-style-type: none">• Creating epidemiologic presentations• In-class problem set• Homework 6 assigned
Week 14 (December 4)	<ul style="list-style-type: none">• Relative risk regression• Working with challenging data	<ul style="list-style-type: none">• In-class problem set• Homework 7 assigned
Week 15 (December 11)	<ul style="list-style-type: none">• Data analysis project	<ul style="list-style-type: none">• Student presentations

SPH AND UNIVERSITY POLICIES & RESOURCES

The School of Public Health maintains up-to-date information about resources available to students, as well as formal course policies, on our website at www.sph.umn.edu/student-policies/. Students are expected to read and understand all policy information available at this link and are encouraged to make use of the resources available.

The University of Minnesota has official policies, including but not limited to the following:

- Grade definitions
- Scholastic dishonesty
- Makeup work for legitimate absences
- Student conduct code
- Sexual harassment, sexual assault, stalking and relationship violence
- Equity, diversity, equal employment opportunity, and affirmative action
- Disability services
- Academic freedom and responsibility

Resources available for students include:

- Confidential mental health services
- Disability accommodations
- Housing and financial instability resources
- Technology help
- Academic support

EVALUATION & GRADING

The maximum number of points that can be earned in the course is 100, as outlined in the table below. There are 7 homework assignments, each worth 10 points. The data analysis project is worth 20 points: evaluation will be based on SAS code (10 points) and format/content of slides (10 points). Assignments will be graded within two weeks. Please refer to the University's Uniform Grading Policy and Grading Rubric Resource at <https://z.umn.edu/gradingpolicy>. Class attendance is worth 10 points: 1 point will be given for attendance at each of the first seven class periods; 3 points will be given for attendance at the last session (student presentations).

Assignment	Due Date	Points
Homework 1	September 25 (11:15am)	10
Homework 2	October 9 (11:15am)	10
Homework 3	October 23 (11:15am)	10
Homework 4	November 6 (11:15am)	10
Homework 5	November 20 (11:15am)	10
Homework 6	December 4 (11:15am)	10
Homework 7	December 11 (11:15am)	10
Data analysis project	December 11 (11:15am)	20
Class attendance		10
Total		100

Grading Scale

The University uses plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following, and you can expect the grade lines to be drawn as follows:

% In Class	Grade	GPA
92.5 - 100%	A	4.000
90.0 – 92.5%	A-	3.667
87.5 – 89.9%	B+	3.333
82.5 – 87.4%	B	3.000
80.0 – 82.4%	B-	2.667
77.5 – 79.9%	C+	2.333
72.5 – 77.4%	C	2.000
70.0 – 72.4%	C-	1.667
67.5 – 69.9%	D+	1.333
62.5 – 67.4%	D	1.000
< 62.5%	F	

- A = achievement that is outstanding relative to the level necessary to meet course requirements.
- B = achievement that is significantly above the level necessary to meet course requirements.
- C = achievement that meets the course requirements in every respect.
- D = achievement that is worthy of credit even though it fails to meet fully the course requirements.
- F = failure because work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I (Incomplete).
- S = achievement that is satisfactory, which is equivalent to a C- or better
- N = achievement that is not satisfactory and signifies that the work was either 1) completed but at a level that is not worthy of credit, or 2) not completed and there was no agreement between the instructor and student that the student would receive an I (Incomplete).

Evaluation/Grading Policy	Evaluation/Grading Policy Description
<p>Scholastic Dishonesty, Plagiarism, Cheating, etc.</p>	<p>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 (As defined in the Student Conduct Code). For additional information, please see https://z.umn.edu/dishonesty</p> <p>The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty: https://z.umn.edu/integrity.</p> <p>If you have additional questions, please clarify with your instructor. 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.</p> <p>Indiana University offers a clear description of plagiarism and an online quiz to check your understanding (http://z.umn.edu/iuplagiarism).</p>
<p>Late Assignments</p>	<p>2 points (out of 10) will be deducted for each business day that an assignment is late (weekends and holidays excluded).</p>
<p>Attendance Requirements</p>	<p>Attendance is required. Most of our class time is set aside for you to work on problem sets. These problem sets are designed to help you build skills in SAS programming, epidemiologic data analysis, and interpretation. The laboratory is designed to promote active learning in an environment where instructors and peers are readily available for guidance and troubleshooting when questions and challenges arise. We expect each student to be engaged in completing these problem sets and active participation is a critical component of the course. If you know in advance that you will need to miss one of the class sessions because of a prior commitment, please speak to the instructor, as it may be possible for you to attend the other section of the laboratory that week.</p>
<p>Extra Credit</p>	<p>N/A</p>

CEPH COMPETENCIES

This course addresses competencies specific to the MPH in Epidemiology.

Competency	Learning Objectives	Assessment Strategies
<p>4. Collect new data or select appropriate and valid sources of data collected by others, including those in public databases, needed to perform descriptive and analytic epidemiologic investigations.</p>	<ul style="list-style-type: none"> • Connect the applied methods taught in PubH 6343 with actual data using the appropriate study designs and analytic techniques 	<ul style="list-style-type: none"> • Data analysis project
<p>6. Using statistical software, examine associations in epidemiologic data with appropriate statistical assumptions and analytic approaches.</p>	<ul style="list-style-type: none"> • Connect the applied methods taught in PubH 6343 with actual data using the appropriate study designs and analytic techniques • Conduct basic SAS programming for epidemiologic methods presented in PubH 6343 • Understand why the specific procedures taught are used and interpret the results in an epidemiologic as well as a statistical context • Examine crude data for outliers, data errors and distributional assumptions • Debug SAS code when programs do not run correctly 	<ul style="list-style-type: none"> • Homework assignments • Data analysis project
<p>7. Author a written report and develop and deliver an oral presentation to communicate and interpret epidemiologic study results for a professional audience.</p>	<ul style="list-style-type: none"> • Prepare a scientific presentation with appropriate content for introduction/ background, methods, results and discussion 	<ul style="list-style-type: none"> • Data analysis project