BIOST/EPI 536
CATEGORICAL DATA ANALYSIS IN EPIDEMIOLOGY
AUTUMN 2018

PREREQUISITES: BIOST 513 and EPI 514; or BIOST 518 and EPI 514; or BIOST 515; or permission of the instructor

HOURS:

Lecture:	Tuesday & Thursday 1:30 - 3:20, Health Sciences T-639	
Discussions:	Mondays 2:30 - 3:20, Health Sciences T-625	
	Tuesdays 12:30 - 1:20, Health Sciences T-639	

INSTRUCTOR: Barbara McKnight, Ph.D.
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Office Hours: Tuesday 11:00 - noon
Friday 11:00 - noon (except Oct 12)
or by appointment

TEACHING ASSISTANT: Emily Voldal
Office: H657 HS
Email: voldal "at" uw "dot" edu
Office Hours: Monday 3:30-4:20 (except 3:00-4:00 Oct 8)
(No office hours Mon Nov 12 – Veteran's Day Holiday)
Wednesday 2:30-3:20

REQUIRED NOTES: Available on the class website.
https://canvas.uw.edu/courses/1219098.

OPTIONAL TEXTS:
(on reserve in HS library)

Breslow N. and Day N., Statistical Methods in Cancer Research, Volume 1: The Analysis of Case Control Studies. IARC Scientific Publications No. 32, Lyon, 1980.

A free .pdf version of this text is available for download from the International Agency for Research Cancer here.

Hosmer and Lemeshow: Applied Logistic Regression, 3rd ed.. Wiley, 2013. Available free as .pdf through UW libraries here.

Kleinbaum D, Klein M, Logistic regression: a self-learning text. Third Edition. New York : Springer, 2010. Available free as a .pdf through UW libraries here.

RECOMMENDED BOOKS:
(on reserve in HS library)

Borgan et al. Handbook of Statistical Methods for Case-Control Studies CRC Press, Chapman and Hall, Boca Raton, 2018.

Clayton & Hills: Statistical Models in Epidemiology. Oxford University Press, Oxford, 2013. Available as online ebook and for partial .pdf download through UW libraries here.

Collett: Modelling Binary Data. 2nd edition, Chapman and Hall, Boca Raton, 2003.

Harrel, F: Regression Modelling Strategies. Springer, New York, 2001. Available free as .pdf through UW libraries here.

Jewell, NP: Statistics for Epidemiology, Chapman and Hall, Boca Raton, 2004.

Keogh R.H. and Cox D.R. Case-Control Studies. Cambridge U Press, Cambridge 2014. Available free as a .pdf through UW libraries here.

Pearl, J. Causality: Models, Reasoning and Inference. 2nd Edition. Cambridge Univ. Press, Cambridge, 2009. Available as online ebook and for partial .pdf downlaod through UW libraries here.

VanderWeele. T.J. Explanation in Causal Inference: Methods for Mediation and Interaction., Oxford University Press, Oxford 2018. Available as online ebook and for partial .pdf download through UW libraries here.

Vittinghoff, E., Glidden, DV, Shiboski, SC. (2006). Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models Springer-Verlag New York. Available free as .dpf through UW libraries here.

COMPUTER SOFTWARE: We will be using the statistical package R (https://www.r-project.org/) with front end R Studio (https://www.rstudio.com/). Both are available at no cost for Windows, Mac and Linux operating systems. Every student is required to have a laptop computer with these installed, and you are encouraged to install them yourself before the first discussion section. We will be using these for exercises in class and in discussion sections and you will use them on homework. If you do not own a laptop computer, you may borrow one for the quarter from the Student Technology Fee Loan Program (https://itconnect.uw.edu/service/student-technology-loan-program/)

CLASS WEBSITE: Homework assignments, readings, data, lecture notes, and videos of class sessions will be available on the class Canvas website:

https://canvas.uw.edu/courses/987389.

A class discussion board, maintained by Emily, will also be available there.

If you are registered for the course, you should have automatic access through the Canvas link on your myUW web page. If you must register late and need access before you register, please email me with a request using your **UW email** address so I can use your uwnetid to give you access.

POLL EVERWHERE: Starting next week, we will be using the Poll Everywhere audience response system in class. We will be using daily mini-quizzes with responses posted to Poll Everwhere in class this quarter. There are several reasons for this: 1) to give me feedback on how much you know and what misconceptions you might have before I begin a topic, so I can better address what you need; 2) to help you practice remembering material we have covered; 3) to give you practice applying what we have learned and solving problems using the skills you are learning with immediate feedback; and 4) to communicate regularly to you my expectations for your mastery of the material we have covered.

There will be two types of Poll Everywhere questions: pre-tests and post-tests. Any answer on a pre-test (correct or incorrect) will be worth 5 points. Correct answers on post-tests will count 5 points and incorrect answers on post-tests will count 4 points. Incorrect answers are worth points for both of these types of tests because they provide information to both of us about your progress in the course.

After some Poll Everywhere questions you will be asked to pair up and discuss your answers with a neighbor, and then sometimes asked to complete a second poll for the same question. To begin a class discussion, I may also call on you to explain your pair's thinking to the rest of the class; if you do not feel prepared to describe your pair's thinking, you may pass and I will choose someone else.

To get ready to use Poll Everywhere, please go to the site (https://itconnect.uw.edu/learn/tools/polleverywhere/), click on Poll Takers: Set Up Your Account and Log In, and set up your account if you do not already have one. Please note that for your Poll Everywhere account to be maintained and integrated with Canvas, the email address you supply Canvas must be your <u>UW email address</u>.

BRING TO CLASS: To be able to participate in classroom exercises, please bring either a tablet or notebook and pen or pencil to class and a phone, tablet or laptop to participate in Poll Everywhere polls. Please bring a laptop to Discussion sections.

ACCESS AND ACCOMODATIONS:

Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), you are welcome to contact DRS at 206-543-8924 uwdrs@uw.edu or http://depts.washington.edu/uwdrs/. DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

HOMEWORK:

Homework will be assigned regularly throughout the quarter, and you will always be given a week to complete it.

I view the homework in this class as an important part of the process of your learning. You are encouraged to do the best work you can. It is fine to work together with others on written homeworks to solve problems and/or to ask Emily or me for answers to questions about how to do something in R. However, I expect that your written homework gives a summary of your personal understanding of the answers, independent of of others. Late homework will not be accepted.

Homework will be marked 10 points if it represents a good faith effort to answer all parts of all questions and answers are substantially correct, and 8 if all but one or two small parts of questions are answered with a good faith effort or there are substantive errors in the answer to at least on problem. More incomplete homework will be scored zero.

After homework has been graded and the key posted, you are expected to read the key, and be able to answer the questions without reference to the key.

PROJECT:	A data analysis project will be assigned by mid-quarter. You will be assigned to a group and asked to work together to analyze data from an Epidemiologic case-control study and write an article reporting your results.
ACADEMIC INTEGRITY:	Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.
	The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the University of Washington Student Conduct Code (WAC 478-120). We expect you to know and follow the university's policies on cheating and plagiarism, and the SPH Academic Integrity Policy. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington Community Standards and Student Conduct website.
	Please note that all of the following count as academic misconduct: using more than one Poll Everywhere account or a friend's Poll Everywhere account, giving your Poll Everyhwere account to someone else to use in your place, using a cellphone or other communication device to communicate with others during an exam or Poll Everyhwere poll, talking or sharing answers during an exam or Poll Everywhere poll (unless specifically directed to do so by the instructor during some discussion-based mini-quizzes) .
EMAIL:	I am happy to answer email questions when I have time, but I am not often able to give prompt replies except during office hours when no students are in attendance. Sending email is usually not the most efficient option for you to get your questions answered: it usually ends up taking you less time to attend my or Emily's office hours, and we encourage you to do so.

LEARNING ENVIRONMENT:

I take seriously my role as an advocate for your learning in this class. In addition to providing information, assignments and activities that I hope will support your learning, I will do my best to help us maintain the classroom as a supportive learning environment that respects diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion and culture. If you have a concern, I encourage you to communicate it to me. Please let me know ways to improve the effectiveness of the course for you personally, or for other students. If you make a request and you do not feel my response has been adequate, please contact the chair of the department at heagerty@uw.edu.

To maintain a respectful and welcoming classroom environment, I ask that we all commit to showing respect to each other both inside and outside of class.

COURSEWORK: Homework   Regularly

                        In-class Poll Everywhere polls   Most days

                        Quizzes: During the last hour   T Oct 16, T Nov 6, Th Nov 29
                        of class (closed book)

                        Data Analysis Project: Tuesday, December 4

                        Final Exam: Fri December 14,   2:30-4:20 pm
                        (closed book)

GRADING: Numerical class grades will be based on:

                        Final Exam (35%),
                        Quizzes (after dropping lowest score) (30%),
                        Data Analysis Project (20%)
                        Homework (after dropping lowest score) (10%)
                        Poll Everywhere questions (after dropping lowest 20% of scores) (5%)