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Health Sciences Building F-667

Teaching Assistants:
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See CANVAS for instructors’ office hours

Grading Scheme:
Final exam: 35%
Midterm exam: 30%
Data Analysis Project: 15%
Homework: 20%

Course Topics:
Measures of Disease Occurrence and Association
Collapsibility of Measures of Association
Confounding
Directed Acyclic Graphs and Identification of Adjustment Variables
Marginal and Conditional Confounding Control
Simplest Logistic Models for Cohort studies
Simplest Logistic Models for Case/Control studies
General Logistic Regression Model; Estimators and Test Statistics
Adjusting for Confounders using Regression
Exposure Variable Models
Effect Modification on the Multiplicative Scale
Conditional Logistic Regression; Application to Matched Data
Polytomous Logistic Regression
Predicting binary outcomes; evaluation of biomarkers
Logistic regression for Risk Prediction

Prerequisites:
Upon entering this course, you are expected to have completed courses in introductory statistics or biostatistics and multiple regression including logistic regression. You should understand fundamental statistical concepts including sampling distributions, parameter estimation and confidence intervals, and statistical hypothesis tests. You should know how to fit multiple linear regression models, how to interpret regression coefficients in multiple linear regression models, and how to perform hypothesis tests about regression coefficients. You should be familiar with case-control, cross-sectional and cohort study designs.
Learning Objectives:
After successfully completing this course, you can expect to be able to:
1. Identify summary measures most pertinent to a particular scientific question, including whether the summary measure should be adjusted or unadjusted.
2. Distinguish between adjusted and unadjusted odds ratios and other summary measures; Describe the difference in interpretation between an adjusted an unadjusted summary measures.
3. Fit appropriate logistic regression models to data from epidemiologic studies using R or other statistical software.
4. Interpret regression coefficients from logistic regression models fit to data from epidemiological studies, including cross-sectional, cohort, and case-control data.
5. Characterize the limitations on parameter interpretations when analyzing unmatched and matched case-control data.
6. Use and interpret elements of statistical inference properly, including confidence intervals and p-values.
7. Identifying settings where logistic regression methods should be replaced by conditional logistic regression methods.
8. Present results of analyses using logistic regression in a manner suitable for publication in a scientific journal.
9. Use logistic regression to estimate risks of a binary outcome. Interpret measures of risk model discrimination such as AUC. Use graphical methods to evaluate the risk model calibration.

Homework:
There will be approximately 7-8 homework assignments during the course. Students will always have at least 6 days to complete a homework assignment. Late homework is not accepted, even for good reasons. Because of this strict policy, the lowest homework score for each student will be dropped when calculating course grades. Note: there will be “grace period” of at least 1 hour after the due date/time before students can no longer upload homework. An assignment submitted during this grace period is eligible for full credit even if the system marks it late.

Homework is viewed as part of the learning experience of this course and not as a tool for evaluating mastery of course material. Therefore, homework will be graded based on a good faith effort to answer all homework questions. Submitted assignments demonstrating a good faith effort to all questions will receive the maximum of 10 points.

As a learning experience, students may work together on homework. Submitted work should reflect a student’s own understanding of the problem. In summary, it is OK to work together but it is never OK to copy another student’s work.
In order to receive credit, homework should be neat, well-organized, and written in clear, grammatically-correct English using complete sentences. Raw output from software is unacceptable. Plots should be labeled, including axis labels, and options such as scale should be
chosen to make the plot as informative as possible. Homework submissions that do not meet these standards will not receive credited.

Each homework assignment is worth 10 points. Assignments submitted by the deadline will receive either 10, 9, or 0 points based on whether the student demonstrates a good faith effort to answer all of the questions on the assignment. Part of demonstrating a good faith effort is following the guidelines for homework above.

10: A good-faith effort was made on all parts of all problems.
9: A good-faith effort was made on all but very minor parts of one or a few problems. (For example, omitting a small component in part of a question). Or homework was complete but was slightly below-standard in some places.
0: At least one problem, or many parts of some problems did not receive a good-faith effort. (For example, not attempting to answer part of a question, or not attempting a whole question, or pasting software output rather than answering a question)

Questions on course material and email policy
Students who have questions on course material have the following resources: raise the question in class, raise the question in discussion section, attend office hours, ask the question on the Canvas discussion board. The Canvas discussion board is particularly useful for software questions.

Email is not an appropriate venue for asking questions about course material. Such emails to the instructor or TAs will not receive a response.

Please DO email the instructor if you think something is missing from Canvas (e.g. lecture notes for the next day, homework assignment due within the next week, etc.)

Access and Accommodation
The experience of every student in this class is important, and 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 or uwdrs@uw.edu or disability.uw.edu. 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.
Academic Integrity
http://sph.washington.edu/students/academicintegrity/

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.

Here are links for the text above in boldface:
UW Student Conduct Code (WAC 478-120)
SPH Academic Integrity Policy
http://sph.washington.edu/students/academicintegrity/
Community Standards and Student Conduct
http://www.washington.edu/cssc/

Classroom Climate
The UW School of Public Health seeks to ensure all students are fully included in each course. I strive to create an environment that reflects mutual respect and a shared desire to learn. I encourage students with concerns about classroom climate to talk to me, your advisor, a member of a departmental or SPH Diversity Committee and/or the program director.

TA Concerns
If you have any concerns about your TA, please see the TA about these concerns as soon as possible. If you are not comfortable talking with the TA or not satisfied with the response that you receive, you may contact the Department of Biostatistics Associate Director of Academic Affairs (biostgp@uw.edu). If you are still not satisfied with the response that you receive, you may contact the Department of Biostatistics Chair (bchair@uw.edu). You may also contact the Graduate School at G-1 Communications Building, by phone at 206-543-5139 or by email at raan@uw.edu.

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