

## PubH 7407: Analysis of Categorical Data

Spring 2009

- Lecture: 11:15 A.M.–12:30 P.M., Tuesday and Thursday, MoosT 5-125.
- Instructor: Dr. Tim Hanson, Associate Professor of Biostatistics.  
Office: A444 Mayo, phone: 626-7075, e-mail: hanson@biostat.umn.edu.  
Office hours: Tuesday and Thursday 12:45–2:00.
- Prerequisites: PubH 7405 and Stat 5102. Familiarity with linear regression, basic distributional theory, and maximum likelihood are assumed. Basic knowledge of SAS is needed.
- Course description:  
We will cover a good portion of *Categorical Data Analysis* (Second Edition) by Alan Agresti. If time permits, we will cover additional topics including generalized additive mixed models, Bayesian approaches, and/or latent variable models.

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Week	Topics	Text chapters
1 (Jan 20)	Introduction: distributions and inference	1
2 (Jan 27)	Describing contingency tables	2
3 (Feb 3)	Inference for contingency tables	3
4 (Feb 10)	Introduction to generalized linear models	4
5 (Feb 17)	Logistic regression	5
6 (Feb 24)	Logistic regression	6
7 (Mar 3)	Multinomial response models	7
8 (Mar 10)	Review and midterm	
9 (Mar 17)	Spring Break	
10 (Mar 24)	Marginal analysis of correlated data	10, 11
11 (Mar 31)	Generalized linear mixed models	12
12 (Apr 7)	Generalized linear mixed models	12
13 (Apr 14)	Log-linear models	8
14 (Apr 21)	Log-linear models, odds & ends	9
15 (April 28)	Generalized additive models	notes
16 (May 5)	Review and final exam	

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- Teaching assistants: Xiaochun Zhu and Lijuan Shen. Offices hours: Monday 10-12 (Xiaochun) and Wednesday 10-12 (Lijuan) in Mayo A446. Lijuan's e-mail: shenx112@umn.edu; Xiaochun's e-mail: zhuxx121@umn.edu.
- Instructional method: Lecture notes based on the text will be posted the evening before the lecture. You may want to scale several to a page, print them out, and read them ahead of time. The course webpage is <http://www.biostat.umn.edu/~hanson/cat/cat2009.html>.
- Evaluation and grading:  
There will be 9–10 homework assignments, comprised of a mix of applied and theoretical problems from the text. Homework will be typically assigned weekly and due one week from when the assignment is announced. Grading homeworks requires a great deal of effort from your teaching assistant; **DO NOT** expect to hand in homeworks after the due date.

Please include only relevant output from statistical packages when writing up your homeworks. You are encouraged to discuss homework problems with other students but are expected to write them up independently.

Sample SAS code for fitting models, as well as many of the data sets used in the book can be found at <http://www.stat.ufl.edu/~aa/cda/cda.html>. There are also answers to many of the odd numbered problems here.

The final grade will be computed as 60% homework, 20% midterm, and 20% final exam. Grades will be assigned 92-100% A, 90–91 A–, 88–89 B+, 82–87 B, 80–81 B–, 60–79 C, below 60 F.

**Incomplete Grade:** An incomplete grade will not be permitted except in the case of a documented emergency (e.g., medical). In an incomplete is deemed appropriate by the instructor, the student, in consultation with the instructor, will prepare a detailed written agreement specifying the time and manner in which the student will complete the course requirements. The written contract will give explicit details for every component of the course which remains to be completed. Extension of completion of the work will not exceed one year. The written agreement must be submitted to the instructor, major coordinator and the Student

Services Center prior to the date by which grades must be entered at the end of the term.

After a review of transcripts (end of semester), instructors teaching School of Public Health courses will be contacted by the Student Services Center regarding the assigned grades of “I” for students. If a written agreement exists between the student and instructor, the incomplete will remain on the transcript per the terms of the agreement. If a written agreement does not exist and an incomplete was submitted for the student without a written agreement, a grade of “F” or “N” will be officially submitted by the Student Services Center. If the student does not comply and meet the deadlines as determined in the written agreement, a grade of “F” or “N” will be officially submitted by the Student Services Center.

- **Other Course Information and Policies:**

*Grade Option Change:* Students may change their grade option through the second week of the semester.

*Course Withdrawal:* Students should refer to the Refund and Drop/Add Deadlines for the particular term at [onestop.umn.edu](http://onestop.umn.edu) for information and deadlines for withdrawing from a course. Students wishing to withdraw from a course after the noted final deadline for a particular term must contact the School of Public Health Student Services Center at [sph-ssc@umn.edu](mailto:sph-ssc@umn.edu) for further information.

*Student Conduct, Scholastic Dishonesty and Sexual Harassment Policies:* Students are responsible for knowing the University of Minnesota, Board of Regents’ policy on Student Conduct and Sexual Harassment found at [www.umn.edu/regents/polindex.html](http://www.umn.edu/regents/polindex.html). Students are responsible for maintaining scholastic honesty in their work at all times. Students engaged in scholastic dishonesty will be penalized, and offenses will be reported to the Office of Student Academic Integrity (OSAI, [www.osai.umn.edu](http://www.osai.umn.edu)). The University’s Student Conduct Code defines scholastic dishonesty as “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; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.” Plagiarism is an important element of this policy. It is defined as the presentation of another’s writing or ideas as your own. Serious, intentional plagiarism will result in a grade of “F” or “N” for the entire course. For more information on this policy and for a helpful discussion of preventing plagiarism, please consult University policies and procedures regarding academic integrity: <http://writing.umn.edu/tww/plagiarism/>.

*Disability Statement:* It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have a documented disability that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to contact Disability Services to have a confidential discussion of their individual needs for accommodations. Disability Services is located in Suite180 McNamara Alumni Center, 200 Oak Street. Staff can be reached by calling 612/626-1333 (voice or TTY).