

Credits: 3
Meeting Days: ONLINE
Meeting Time: ONLINE
Meeting Place: ONLINE
Instructor: Susan Telke
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Office Hours: Discussion Board Anytime

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I. Course Description

Review of Ttests, One and Two Way ANOVA, Simple Linear Regression, Multiple Linear Regression, Relative Risk, Odds Ratio Estimation, Logistic Regression, Multiple Logistic Regression, Survival Data, Kaplan-Meier Tables, Survival Curves, Cox Proportional Hazards and Introduction to Sample Size Estimation

II. Course Prerequisites

Prereq [6414, [public health [MPH or certificate] student or environmental health [MS or PhD] or health journalism MA or health infomatics [MS or PhD]] major] or instr consent.

III. Course Goals and Objectives

By the end of the course, students should have a basic understanding of the fundamentals of biostatistical methods for continuous outcome data, binary outcome data and binary outcome data with time.

This includes:

- Hypothesis Testing for Means
- ANOVA (One and Two Way)
- Simple Linear Regression and Multiple Linear Regression
- Logistic Regression and Multiple Logistic Regression
- Survival Data and Survival Analysis

Additional goals in Biostatistical Methods II are critical journal reading skills and basic SAS programming language competence.

IV. Methods of Instruction and Work Expectations

Exams

Midterm Exam

Final Exam

Note: All exams are open book and open notes.

Homework

There will be approximately 6 homework assignments. (Notice we are NOT dropping the lowest two this semester.)

Homework assignments are due the Monday of the next section. For example, homework 1 is due Monday June 22, 2009. Homework 2 is due Monday June 29, 2009.

Most homework assignments will be made up of text questions out of Principles of Biostatistics, Second Edition, by Pagano & Gauvreau book AND also some questions that require learning and using the SAS system. These SAS related problems will be gone through step-by-step in the lab tutorial each week before the assignment is due.

Each homework assignment is worth 20 points.

The homework assignments are to be typed in a word processing program. SAS output with circled answers will not be acceptable. Students are to summarize results in paragraph form.

Questions regarding homework and/or computing for which you do not feel your TA has provided a satisfactory answer should go to Susan Telke(susant@biostat.umn.edu).

V. Course Text and Readings

COURSE TEXT - REQUIRED

- Principles of Biostatistics, Second Edition, by Marcello Pagano & Kimberlee Gauvreau (Duxbury 2000).

SAS Books – Not Required

- The Little SAS Book, 2nd ed., by L. Delwiche & S. Slaughter, (1996) SAS Institute
- Applied Statistics and SAS Programming Language, 4th ed., by R. Cody & J. Smith, (1997) Prentice-Hall Inc.

PC SAS - Required for ONLINE Class

- You will need PCSAS9.1 PCSAS can be purchased through ADCS website. The cost is \$120 a year for a student.

VI. Course Outline/Weekly Schedule

Weeks	Dates	Text	Homework	Topics
1	June 15 thru June 21	Chpt. 10 (Lesson 1a) Chpt. 11 (Lesson 1b,1c) Chpt. 12 (Lesson 1d)	Homework 1	Hypothesis Testing for Means <ul style="list-style-type: none"> Lesson1a: Hypothesis Testing for One Mean Lesson1b: Hypothesis Testing for Matched Pairs Design Lesson1c: Hypothesis Testing for Two Independent Means Lesson1d: Hypothesis Testing for Two or More Independent Means (ANOVA) Lesson1e: Two-Way ANOVA
2	June 22 thru June 28	Chpt. 17 (Lesson 2a) Chpt. 18 (Lesson 2b-2e)	Homework 2	Least Squares Regression <ul style="list-style-type: none"> Lesson2a: ScatterPlots and Correlation Lesson2b: Least Squares Regression Lesson2c: Least Squares Regression Diagnostics-Plots Lesson2d: Least Squares Regression Diagnostics-Influential and Outliers and Confidence Intervals Lesson2e: Calculations in the ANOVA table
3	June 29 thru July 5	Chpt. 19 (Lesson 3a-3c)	Homework 3	Multiple Regression <ul style="list-style-type: none"> Lesson3a: Multiple Linear Regression without Interaction Lesson3b: Multiple Linear Regression with Interaction Lesson3c: ANOVA vs. ANCOVA vs. Regression and Adjusted Means Comparisons
4	July 6 thru July 12			Catch up and Review. Midterm Exam (Week of July 6 thru July 12)
5	July 13 thru July 19	Chpt. 15 (Review) Chpt. 20 (Lesson 4a-4c)	Homework 4	Simple Logistic Regression <ul style="list-style-type: none"> Lesson4a: Introduction to Logistic Regression Lesson4b: Calculating probabilities and Considering Interaction Terms Lesson4c: ROC Curves in Logistic Regression
6	July 20 thru July 26	Chpt. 21 (Lesson 5a,5b)	Homework 5	Survival Data, Kaplan-Meier Estimates <ul style="list-style-type: none"> Lesson5a: Introduction to Survival Data Lesson5b: Kaplan Meier Estimates, Comparing Survival Curves
7	July 27 thru Aug. 2	Supplemental Material	Homework 6	Comparing Survival Curves, Proportional Hazards Model <ul style="list-style-type: none"> Lesson6a: Introduction to Survival Analysis- Cox Proportional Hazards Lesson6b: Interaction Terms and Testing Model Assumptions, Reading Journal Articles.
8	Aug. 3 thru Aug. 9	Review Chpt 10.4,10.5		Sample Size Estimation and How to Critically Read Journal Articles <ul style="list-style-type: none"> Lesson7a: General Understanding of Sample Size and Power Final Exam Review
	Aug. 10-12			Final Exam (August 10 thru August 12)

*** The book covers most of the topics in a similar fashion. Some of the topics are covered in more detail in the notes. You will be responsible for all that is covered in the notes.**

VII. Evaluation and Grading

Midterm Exam 30%

Final Exam: 30%

Homework: 40%.

The grading scale based on the total percentage is the following:

- 93-100 A
- 90-92 A-
- 85-89 B+
- 75-84 B
- 70-74 B-
- 65-69 C+
- 55-64 C
- 50-54 C-

Note: All MPH students must take courses designated as part of the public health core for a letter grade (A-F). Students will be required to achieve no less than a B- grade in each course taken on an A-F basis. Any student who plans to apply to the School of Public Health or thinks they will ever apply to the School of Public Health must register for the course A/F.

For those taking the course S/N (Satisfactory/No Grade), an S will be earned if a grade equivalent to a C- or above is achieved (Student is not in the School of Public Health).

For all students, if a grade of at least C- is not achieved, the grade will be F (or N).

Incomplete Grade

An incomplete grade is permitted only in cases of exceptional circumstances and following consultation with the instructor. In such cases an "I" grade will require a specific written agreement between the instructor and the student specifying the time and manner in which the student will complete the course requirements. Extension for completion of the work will not exceed one year.

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 grad option, if applicable, through the second week of the semester. Grade option change deadlines for other terms (i.e. summer and half-semester) 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 Student Services Center at 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.

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).

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/>.

Students are urged to be careful that they properly attribute and cite others' work in their own writing. For guidelines for correctly citing sources, go to <http://tutorial.lib.umn.edu/> and click on "Citing Sources".

In addition, original work is expected in this course. It is unacceptable to hand in assignments for this course for which you receive credit in another course unless by prior agreement with the instructor. Building on a line of work begun in another course or leading to a thesis, dissertation, or final project is acceptable.

If you have any questions, consult the instructor.

Disability Statement

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have a documented disability (e.g., physical, learning, psychiatric, vision, hearing, or systemic) 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 Suite 180 McNamara Alumni Center, 200 Oak Street. Staff can be reached by calling 612/626-1333 (voice or TTY).