

# COMM 790

## Statistical Applications in Communication II

### Winter 2009

Dr. Andrew F. Hayes  
Office: 3068 Derby Hall  
Phone: 688-3027  
Email: hayes.338@osu.edu  
Office hours: TR 1:30 – 2:30, or just stop by any time

Class Location: Journalism 342  
Time: TR 3:30 to 5:18

### Course Materials

- Hayes, A. F. (2005). *Statistical Methods for Communication Science* (Chapters 12 to end of book). Mahwah, NJ: Lawrence Erlbaum Associates
- additional occasional readings, as announced in class, through email, or CARMEN

### Course Description

This course is a continuation of the Fall quarter graduate statistics class (COMM 661Z) and is the third in the four-course methodology sequence required of all students enrolled in the M.A. or Ph.D. program in communication. The course covers an introduction to the analysis of data using the general linear model and serves as a foundation for more advanced statistical methods courses offered throughout the university. Topics include simple and multiple regression, analysis of variance and covariance, tests of significance, the interpretation of model parameters, and other topics in linear models as time allows. Focus is on conceptual understanding rather than mathematical computation. Students will gain experience practicing their learning through various assignments using SPSS software.

### Evaluation

#### One take-home final exam (60%)

There will one take home final examination that requires you to demonstrate, in written form, that you are comfortable with the statistical methods discussed in the class. This exam will be due at 4PM on March 18<sup>th</sup>.

#### Homework assignments (40%)

About every two or three classes you will receive an assignment to complete. The due date of the assignments will be announced when the assignments are distributed (typically one week after the assignment is distributed). **You may NOT work with other students when working through the assignments, and you must submit your own *independently written* answers for each problem.** It is a violation of the Code of Student Conduct to prepare your written answers together and submit answers that are in effect copies of each other, either in whole or part. It is a violation of course policies and the OSU Code of Student Conduct to exchange answers, electronically or otherwise, or to collaborate in any way on these assignments. Violators of this policy will be sent to the Committee on Academic Misconduct in accordance with university policy. I encourage students who believe a classmate has

violated this policy to come forth so appropriate action can be taken. “Cheating” in graduate school simply cannot and will not be tolerated, and the consequences for doing so are severe.

In some cases answers will be right or wrong, but in some cases there is room for subjective grading based on presentation, thoroughness, and so forth. Writing quality will matter when I grade your assignments. Be specific, precise, attentive to detail, and careful in how you phrase your answers, as you will be graded based on your actual answer, not what you intended to say or said awkwardly. Submit something you will be proud to submit, not something to just get you by until the next deadline. Do not wait until the last minute to start the assignments, as eventually, procrastination will show in the quality of your work. Use Word or a comparable word processing program. Use the symbol font for Greek symbols when needed, and learn to use Microsoft’s Equation editor. Use APA format, including tables and figures. Be careful in your formatting of mathematical equations, and be aware of order of operations rules.

The answers for each question will be provided soon after the assignment is due. It is up to you to check your responses with the official answer sheet. If you do not understand any inconsistencies between the official answers and your own, you may contact me for assistance. Frequently, we will discuss the assignments in class after the due date has passed

#### Derivation of Final Grade

My grading system is largely a percentage-based system, where 90% = A, 80% = B, 70% = C, 60% = D, <60% = E, and +/- determinations are based on proximity of your % to the cutoffs. I reserve the right to modify this system downward depending on the distribution of grades. In other words, if only 1 student exceeds the 90% criterion but 5 hit 89%, I may choose to move the A cutoff down to 89%. I do not grade on a curve. You get the grade that you deserve regardless of how the class as a whole performs. Historically, about 20% to 30% of students receive an A or A-, 50 to 60% get a B+, B, or B-, and 10 to 30% receive a C+ or lower.

## **Policies and Miscellaneous**

#### Late or Absent Assignments and Missed Exams

**Unless otherwise notified, assignments are due by the beginning of class on the date due.** An assignment will not be accepted more than two days after the due date. The only exceptions to these rules are tragic, extraordinary, and totally unforeseen personal circumstances that are convincingly **documented** no later than 24 hours after the due date.

#### Attendance

There is no formal attendance policy for this course. However, you are expected to attend always. If I believe attendance is slipping, I reserve the right to create an attendance policy. Not attending class is a very, very bad idea, as some of the examined material will be presented only during lecture, and many of the SPSS techniques to be discussed are not documented anywhere except in class.

#### COMM 790 on CARMEN

COMM 790 is represented on CARMEN. I will upload data files, powerpoint slides, PDFs of extra readings, and other course-relevant material to CARMEN. Learn to use CARMEN, as you will be asked to use it during class to retrieve materials used that day.

### Academic Misconduct

All students at Ohio State University are bound by the Code of Student Conduct (see [http://studentaffairs.osu.edu/resource\\_csc.asp](http://studentaffairs.osu.edu/resource_csc.asp)). Violations of this code in this class, especially pertaining to 3335-23-04 Section A on Academic Misconduct, will be aggressively prosecuted through the procedures the university has set up to deal with violations of the Code. If I believe you have violated the Student Code, your case will be referred to the Committee on Academic Misconduct (see <http://oaa.osu.edu/coam/home.html>) Penalties for academic misconduct from a graduate student are stiff and are almost certain to include failure in this course and perhaps suspension from the university. Graduate students found in violation of the Code can expect revocation of funding from the School, and potentially expulsion from the graduate program. Repeat offenses and especially egregious violations of the Code can result in expulsion from the University, even on the first offense. Make sure that you are familiar with the Code of Student Conduct, and familiarize yourself with “Ten Suggestions for Preserving Academic Integrity” available online at <http://oaa.osu.edu/coam/ten-suggestions.html>. I sit on the University Committee on Academic Misconduct, I know every trick in the book, and I know how this committee deals with misconduct because I am a member of this committee. Stay out of the system by following the rules, and you will be fine.

### Tentative Nature of this Syllabus

This syllabus represents a contract in the works. Events that transpire over the quarter may, in rare circumstances, require me to modify the administration of this course and therefore the syllabus. In the event I need to modify the syllabus, I will announce the modification in class and on the course web page. Ultimately, it is your responsibility to keep up with any such modifications and be aware of current policies, deadlines, etc.

### Students with Special Needs

If you need an accommodation based on the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment we can discuss the course format, anticipate your needs and explore potential accommodations. I rely on the Office for Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies. If you have not previously contacted the Office for Disability Services, I encourage you to do so.

### Mathematics Anxiety

Often one of the student’s greatest barriers to mastering material in methodology courses is fear of mathematics. Many students lock up with anxiety when they are asked to do any computation and this anxiety typically interferes with the ultimate goal of conceptual understanding. I hope you will not let this happen to you. In this class most of the computations will be done by computer, although during lecture some basic computations cannot be avoided. And yes, you will be shown formulas and expect to understand them. But you need not understand the mathematics of the formula so much as you need to understand how they are conceptually used. To be sure, you need to be comfortable with basic mathematical operations. This is graduate school, and you have chosen to study the scientific discipline of communication. You will have to think analytically and quantitatively throughout your days as a graduate student here. You will be challenged in this course, but there is no reason why everyone can’t do well. The best thing that you can do to enhance your likelihood of success is discarding all the baggage that you may be bringing with you into the course—fear, anxiety, a belief that you are no good with numbers, or that you are destined to fail.

With these words of encouragement, at the same time remember that this is a graduate-level course. M.A. students with less experience dealing with the face and intense pace of graduate school are warned not to approach this course as if it were an undergraduate course. You will not succeed if you don’t

dedicate time and energy to reading and contemplating the material. You will probably find yourself working harder in this course than you have in others in your graduate career. The topics we discuss are abstract. Strong performance in a solid introductory statistics course is a prerequisite, and it is unlikely you will do well in this course if you aren't comfortable with fundamental statistical principles. For a review of the basics, read the first 11 chapters of Hayes. For an alternative and more entertaining perspective on introductory-level material, see Gonick & Smith's (1993) *Cartoon Guide to Statistics*, available at most book retailers.

## Schedule of Lectures and Readings

We will progress through the last few chapters of Hayes (2005) at whatever pace seems most comfortable for the class as a whole. The course will be divided up into units. You will be told when we are transitioning into the next unit. I recommend you read each chapter several times as we work through the unit, for your understanding will grow by this repetition, and after concepts that may have confused you at first are clarified during lecture. You will not do well in this course if you don't read the book. You are advised to set aside time each day to read what you have not, and reread what you have.

### **Unit I**

Course overview; introduction to linear models

Reading: None

### **Unit II**

Basic principles of ordinary least squares regression

Reading: Chapter 12

### **Unit III**

Multiple predictors, statistical control, partial association, nonlinearity

Reading: Chapter 13

### **Unit IV**

Categorical predictors in linear models, "analysis of variance"

Reading: Chapter 14

### **Unit V**

"Analysis of covariance"

Reading: Chapter 15

### **Unit VI (if time available)**

Categorical predictors, moderation, or other topics as time allows

Reading: to be announced