

INDIANA UNIVERSITY
School of Public and Environmental Affairs

V507
Data Analysis & Modeling for Public Affairs

Spring Semester, 2007
Mondays, 6:00-8:40p.m., Bus/SPEA 2006

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COURSE OBJECTIVES

This is a continuation of V506. The primary focus will be to extend the student's knowledge of hypothesis testing and linear regression analysis to multiple regression analysis, logistic regression analysis, survival analysis, and discriminant analysis. The secondary focus of this course will be as a practical research methods course. By the completion of this course, the student should be able, to professional standards, organize proper data structures, write a research protocol, develop a formal statistical analysis plan, implement the plan, and report the results. An important aspect will be when and how to consult a professional statistician. The first half of each class will be dedicated to lecture on that week's statistical concepts and review of assigned problems. The second half of each class period will be devoted to a less formal discussion of important, practical research issues. Since this course will be the terminal graduate statistics for many students, a grounding in scientific method, data integrity issues, confidentiality, research misconduct, and general ground rules for doing research will help the new researcher not only to be successful in their scientific inquiries, but to also carry them out in an ethical, valid, and professional way.

COURSE REQUIREMENTS

1. Three analysis projects (75%).
2. Twelve assignments (25%).

Note: Readings are to be completed by the dates assigned. Each analysis project is due in class on the date indicated and will not be accepted for credit after that time. Exercises may be completed with consultation of your classmates, but you should try and complete them on your own.

TEXTBOOK

Alfred DeMaris, Regression with Social Data: Modeling Continuous and Limited Response Variables (Hoboken, NJ: Wiley, 2004). Chapter reading assignments in syllabus refer to this book.

COURSE OUTLINE

<u>Date</u>	<u>Topic</u>	<u>Readings</u>	<u>Exercise</u>
Jan. 8	Introduction Lecture: Simple Linear Regression Topic: <i>Data: It's uses and abuses</i>	Ch. 1 & 2	---
Jan. 15	Martin Luther King Holiday No Class	---	---
Jan. 22	Lecture: Multiple Regression Topic: <i>Assumptions and Transformations- Mr. Box and Mr. Cox</i>	Ch. 3	1
Jan. 29	Lecture: Multiple Regression w/ Categorical Variables Topic: <i>Data Structures – Half the battle</i>	Ch. 4	2
Feb. 5	Lecture: Nonlinearity in regression models Topic: <i>The Internet and the statistician – Drinking from the fire hose</i>	Ch. 5	3
Feb. 12	Lecture: Logistic Regression Topic: <i>Scientific method – The ground on which we stand</i>	Ch. 7.	4
Note: First Analysis Project Due			
Feb.19	Lecture: More Logistic Regression Topic: <i>Research on no budget – Leveraging what is free</i>	Ch. 8	5
Feb.26	Lecture: Multinomial and Ordinal Logistic Regression Topic: <i>Bad data and data with an agenda – Research ethics</i>	---	6

Mar. 5	Lecture: Event Count Models Topic: <i>Survey Methodology – Seldom done well</i>	Ch. 10	7
Mar. 12	Spring Break No Class	---	---
Mar. 19	Lecture: Survival Analysis Topic: <i>How to talk like a statistician – Pseudo-babble</i>	Ch. 11	---
Mar. 26	Lecture: More Survival Analysis Topic: <i>Epidemiology in Public Affairs – Can crime be treated as a disease?</i> Note: Second Analysis Project Due	Ch. 12	8
Apr. 2	Lecture: Multiple Event Survival Analysis Topic: <i>Data miners and statistical fishermen – Why one is good and the other bad</i>	---	9
Apr. 9	Lecture: Data bias issues Topic: <i>Cool tools – fame and fortune through 30-day free software demos</i>	---	10
Apr. 16	Lecture: Factor Analysis Topic: <i>Confidentiality - Freedom of Information / Rights to privacy</i>	---	11
Apr. 23	Lecture: Discriminant Analysis Topic: <i>Classification Tools – Check all that apply</i>	---	12
Apr. 30	Lecture: Sample Size Issues Topic: <i>Recap – Putting into use what you have learned</i> Note: Third Analysis Project Due	---	---

SPEA 2006 Policies

Addendum to Syllabus

Academic Misconduct

All faculty have the responsibility of fostering the “intellectual honesty as well as the intellectual development of students” and part of this responsibility means that faculty must investigate cases of potential academic misconduct promptly and thoroughly. Faculty members also have the responsibility of taking appropriate action when academic misconduct occurs. The penalties for academic misconduct include but are not limited to lowering a grade on an assignment, lowering a course grade, or failing a student for a course. SPEA faculty take their responsibilities seriously and do not tolerate cheating, plagiarism, or any other form of academic misconduct. If you have not done so, you should read the *IUPUI Code of Student Rights, Responsibilities, and Conduct*, which can be accessed at <http://www.iupui.edu/code/>, so that you will be sure to understand what these terms mean and what penalties can be issued for academic misconduct. Significant violations of the Code can result in expulsion from the University. If you have any questions about what constitutes academic misconduct for a course you are taking, be sure to ask the instructor for an explanation.

The *IUPUI Code of Student Rights, Responsibilities, and Conduct* defines four areas of academic misconduct: cheating, fabrication, plagiarism, and interference. The prohibited activities and actions include the following:

1. **Cheating.** A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise, including, but not limited to, the following:
 - a. A student must not use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, and calculators.
 - b. A student must not use another person as a substitute in the taking of an examination or quiz.
 - c. A student must not steal examinations or other course materials.
 - d. A student must not allow others to conduct research or to prepare work for him or her without advance authorization from the instructor to whom the work is being submitted. Under this prohibition, a student must not make any unauthorized use of materials obtained from commercial term paper companies or from files of papers prepared by other persons.
 - e. A student must not collaborate with other persons on a particular project and submit a copy of a written report which is represented explicitly or implicitly as the student's individual work.
 - f. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
 - g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor to whom the work is being submitted.
 - h. A student must not alter a grade or score in any way.
2. **Fabrication.** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.
3. **Plagiarism.** A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge an indebtedness whenever he or she does any of the following:
 - a. Quotes another person's actual words, either oral or written;
 - b. Paraphrases another person's words, either oral or written;
 - c. Uses another person's idea, opinion, or theory; or
 - d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.
4. **Interference.**
 - a. A student must not steal, change, destroy, or impede another student's work. Impeding another student's work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.
 - b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Classroom Etiquette and Disorderly Conduct

SPEA, which is a professional school, expects students to conduct themselves in a courteous and civil manner in interactions with professors and fellow students. Examples of discourteous behavior during class include reading the newspaper, working crossword puzzles, listening to headphones, using computers to surf the web or other non-class activities, talking or laughing with others, arriving late, and so forth. These behaviors are distracting to the instructor and to classmates, and SPEA faculty will address these problems as they arise either in class or on an individual basis.

Disorderly conduct that interferes with teaching, research, administration, or other university or university-authorized activity will not be tolerated and will be reported immediately to the Office of the Dean of Students for disposition, which may result in disciplinary action, including possible suspension and/or expulsion from the university. Students should read the *IUPUI Code of Student Rights, Responsibilities, and Conduct*, which can be accessed at <http://life.iupui.edu/help/code.asp> in order to understand your responsibilities as a student.

Communication between Faculty and Students

In order to verify the identity of all parties involved, effective September 1, 2004, all email communication from current SPEA students to SPEA staff must originate from an Indiana University email account. For email communication with SPEA faculty, current SPEA students should refer to course syllabi for instructors' preferences (Oncourse, Webmail, etc.). This policy applies to current students only.

Instructions for forwarding your IUPUI email to another account can be found at <http://uits.iu.edu/scripts/ose.cgi?berh.def.help>

Course Withdrawals

Students who stop attending class without properly withdrawing from the class may receive a grade of F. It is important to withdraw from a course within specified timeframes (see chart below). Note that withdrawals after Week 12 of a regular session or Week 4 of a summer session are rarely granted. **Poor performance in a course is not grounds for a late withdrawal.**

No withdrawal forms will be processed in the Office of the Registrar after the last day of classes. Any requests for a late withdrawal after the last day of classes must go through the grade appeal process, but each student should remember that in accordance with campus policy, SPEA does not permit a student to withdraw from a course if he/she has completed the course requirements. Grade replacement should be used in this case. See the Office of the Registrar's website at <http://registrar.iupui.edu/withdraw.html> for more information. To withdraw, obtain a withdrawal slip (DROP/ADD Form) from the SPEA Student Services window. Instructions for completing it are given on the form.

Withdrawal Deadlines	
Course deleted from record, no grade assigned, 100% refund (Advisor signature IS NOT required)	Week 1 (last day)
Withdrawal with automatic grade of W (Advisor signature IS required)	Week 2– Week 7 (regular session) Week 2 – Week 3 (summer session)
Withdrawal with grade of W or F (Advisor and instructor signatures ARE required)	Week 8 – Week 12 (regular session) Week 3 – Week 4 (summer session)

Incompletes

A grade of incomplete (I) indicates that a 'substantial portion' of the work in a course has been satisfactorily but not entirely completed by the student as of the end of the semester. The incomplete can be given to a student facing a hardship such that it would be unjust to hold the student to the established time limits for completing the work. To be eligible for the incomplete in a SPEA course, the student's work must be of passing quality, and the student must have completed 75% of the course requirements. **Poor performance in a course is not grounds for an incomplete.** SPEA follows the campus guidelines, which may be accessed at the Office of the Registrar's website at <http://registrar.iupui.edu/incomp.html>, in awarding incompletes. Incompletes must be removed within a time period not to exceed one year after the semester in which the student was enrolled in the course.

The incomplete will revert to an 'F' if the work is not completed within the allotted timeframe established by the instructor.

Grade Changes

Under certain circumstances, students can seek grade changes for previously taken courses if they believe that a grade has been calculated or assigned incorrectly. A student who is seeking a grade change must first contact the instructor and ask for the grade change. In the event the instructor does not change the grade, the student can file a Change of Grade Petition with the Registrar's Office. **A student has 90 days after the conclusion of a course to appeal a grade.** In cases of extenuating circumstances, SPEA may consider petitions filed after this date. SPEA will review the request and make a final decision. The Change of Grade petition form is located at the Office of the Registrar's website at <http://registrar.iupui.edu/grdfm.html>.

Students Called to Active Duty

SPEA encourages any student who is in the Indiana Military Reserves and is called to active duty to finish his/her coursework if at all possible. Students who cannot complete their courses have the option of withdrawing with 100% fee refund, but this request must be made within one week of being called to active duty. Students who are called to active duty may qualify for an incomplete (provided that all the above criteria have been met). For further information, please see the Office of the Registrar's website at <http://registrar.iupui.edu/activeduty.html>.

Final Exam Schedule

If a final exam is given, it must be held on the day and time set in the final exam schedule. If an instructor has changed the final exam date, the student should first consult with the instructor. Students who have more than three final exams in one day or insufficient time to get from one exam to another should consult with their instructors to resolve these conflicts. Exams may not be given in the week before the final exam week. If a student is not able to resolve a final exam problem with the instructor, the student may report the problem to the Director of Undergraduate or Graduate programs. See the Office of the Registrar's website at <http://registrar.iupui.edu/accal.html> for the final exam week schedule.