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Criminal Justice 7350E
Discrete Multivariate Models
Texas State University
Fall 2016
Dr. Vásquez

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Description, Objectives, and Prerequisite

This is a specialized doctoral-level course in statistics and data analysis for those students who actually intend to engage in quantitative data analysis for research purposes. The primary focus of the course is regression models for discrete outcome variables, which are sometimes called limited or categorical dependent variables. The topics include maximum likelihood estimation, binary and multinomial logistic models, and Poisson and negative binomial models. The secondary focus is extending these topics to exist in the context of a multilevel or mixed-effects regression model.

While these techniques will receive theoretical treatment, this is not a theoretical statistics or calculus-based course. The objective of the course concerns the application of the techniques and the interpretation of estimates generated with software. The course will, *in a very obvious way*, assume the student has the understanding of regression provided by CJ 7321 and access to Stata software.

Weekly Class Meeting Time and Place

This class meets Tuesday at 6:30PM-9:20PM in Hines Academic Center room 103.

Contact Information, Office Hours, and Email Message Policy

Bob Edward Vásquez, Ph.D.
Hines Academic Center, 126
Thursday 2:30 PM - 3:30 PM, and by appointment.
Phone: (512) 245-8460
E-mail: Bob.Vasquez@txstate.edu

Students with appointments are given priority over "walk-ins," phone calls, and email messages, so try to set up an appointment with me. I strive to respond to email messages within 24 hours of receiving them. Email messages should contain a greeting, a body, and a closing. Send professional email messages when corresponding with me. *I do not respond to incomplete email messages or messages that do not have sentence structure*.

Attendance Policy

Attendance is required in this course, and tardiness irritates me and disrupts the class. Absences will be disastrous for your progress and grade. Do not miss class. It is in your personal interest to attend class. Statistical knowledge builds on itself, and my lectures will assume knowledge and understanding of previous lectures. If you get behind, you will find it exceedingly difficult to catch up.

Students should be mentally present too, a reason why there is no use of mobile phones and other such devices or distractions during class. Students should expect to take extensive notes during lecture.

** I do not provide lecture notes to students. I do not provide make-up lectures for absent students. I do not allow any audio or visual recordings of my lectures.

Text and Materials

The following textbooks are required. Articles for the course will be uploaded on TRACS as needed. You will also need a three-ringed hard-covered binder, plenty of paper, a writing instrument, and a scientific calculator. *Mobile phone calculators are not sufficient*. A graphing calculator is not needed, however. Bring all materials to every class.

Required

Elisaon, S. R. (1993). *Maximum likelihood estimation: Logic and practice*. Sage.

Goldstein, H. (1999). *Multilevel statistical models*. London: Institute of Education, Multilevel Models Project, April 1999. (available
http://www.ats.ucla.edu/stat/examples/msm_goldstein/default.htm)

Hox, J. J. (1995). *Applied multilevel analysis*. Amsterdam: TT-Publikaties. (available
http://joophox.net/publist/pubenjh.htm ; or directly at http://joophox.net/publist/amaboek.pdf)

Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage. (ISBN-10: 0803973748; ISBN-13: 978-0803973749)

Menard, S. (2001). *Applied logistic regression analysis* (2nd edition). Sage.

Optional

Agresti. A. (2013). *Categorical data analysis* (3rd ed.). Wiley.

Hox, J. J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). NY: Routledge Academic.

Long, J. S., & Freese, J. (2014). *Regression models for categorical dependent variables using Stata* (3rd ed.). College Station, TX: Stata Press.

Powers, D. A. & Xie, Y. (2008). *Statistical methods for categorical data analysis* (2nd ed.). Emerald Group.

Exams, Grading, and Late Work

There will be three equal-weight exams over the span of the semester. Exams are take-home assignments due *approximately* one week after they are assigned.

Exam I	= 1/3 of grade	Due October 4, 2016
Exam II	= 1/3 of grade	Due November 1, 2016
Exam III	= 1/3 of grade	Due December 13, 2016 (class meets 8:00 PM to 10:30 PM)

Late work is not accepted. If the assignment is not in my hands on or before the time it is due, the assignment is late. Assignments are due at the beginning of class.

Students with Special Needs

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact me as soon as possible. You will be asked to provide documentation from the Office of Disability Services. Failure to contact me in a timely manner may delay your accommodations.

Academic Dishonesty and Honor Code

It is expected that students do their own work in my class. This is a University-wide expectation, and academic penalties exist for violating the Honor Code Policy, which I provide below.

Texas State University-San Marcos Honor Code

As members of a community dedicated to learning, inquiry, and creation, the students, faculty, and administration of our University live by the principles in this Honor Code. These principles require all members of this community to be conscientious, respectful, and honest.

WE ARE CONSCIENTIOUS. We complete our work on time and make every effort to do it right. We come to class and meetings prepared and are willing to demonstrate it. We hold ourselves to doing what is required, embrace rigor, and shun mediocrity, special requests, and excuses.

WE ARE RESPECTFUL. We act civilly toward one another, and we cooperate with each other. We will strive to create an environment in which people respect and listen to one another, speaking when appropriate, and permitting other people to participate and express their views.

WE ARE HONEST. We do our own work and are honest with one another in all matters. We understand how various acts of dishonesty, like plagiarizing, falsifying data, and giving or receiving assistance to which one is not entitled, conflict as much with academic achievement as with the values of honesty and integrity.

THE PLEDGE FOR STUDENTS

Students at our University recognize that, to insure honest conduct, more is needed than an expectation of academic honesty, and we therefore adopt the practice of affixing the following pledge of honesty to the work we submit for evaluation:

I pledge to uphold the principles of honesty and responsibility at our University.

THE PLEDGE FOR FACULTY AND ADMINISTRATION

Faculty at our University recognize that the students have rights when accused of academic dishonesty and will inform the accused of their rights of appeal laid out in the student handbook and inform them of the process that will take place.

I recognize students' rights and pledge to uphold the principles of honesty and responsibility at our University.

ADDRESSING ACTS OF DISHONESTY

Students accused of dishonest conduct may have their cases heard by the faculty member. The student may also appeal the faculty member's decision to the Honor Code Council. Students and faculty will have the option of having an advocate present to insure their rights. Possible actions that may be taken range from exoneration to expulsion.

(For more information, visit http://www.txstate.edu/effective/upps/upps-07-10-01.html)

Course Calendar

Dates	Topic	Readings
August 30; September 6:	Standard Linear Model and Maximum Likelihood Estimation	Long, chapters 1-2; Eliason.
September 13, 20, 27:	Binary-outcome dependent variables ***TEST 1 Assigned September 27*** *(DUE October 4, 2016)*	Long, chapters 3-4; Menard
October 4, 11:	Multinomial and Ordinal Logistic, and Tobit Regression	Long, chapters 5-7 Osgood et al. (2002) Vásquez (2010)
October 18, 25:	Poisson and Negative Binomial Regression ***TEST 2 Assigned October 25*** *(DUE November 1, 2016)*	Long, chapter 8 Osgood (2000)
November 1, 8, 22, 29; December 6; and December 13 8:00pm-10:30pm:	Multilevel Modeling ***TEST 3 Assigned December 6*** *(DUE 8:00PM December 13, 2016)*	Goldstein, chapters 1-8; Hox, chapters 1-2.

Note: The calendar and syllabus are subject to change. Attend all classes.