

STATISTICS 6450

Room: Baker Systems 136

Autumn 2016

10:35 a.m. - 12:25 p.m. T R

- Lecturer:** Prof. Mario Peruggia - 205A Cockins Hall, 292-0963
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- T.A.:** Mr. Jianhao Zhang - CH 420, 292-1093
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- Text:** Kutner, M.H., Nachtsheim, C.J., and Neter J. (2004) *Applied Linear Regression Models* (4th Ed.), McGraw Hill/Irwin
- Course Web Site:** Important announcements and course materials will be posted on the [Carmen](#) course web site
- Office Hours:** Peruggia: M 11:00-12:00, W 3:00-4:00, and by appointment

General: Statistics 645 covers the theory and applications of linear regression analysis (Ch. 1–12 of the textbook) and logistic regression (Ch. 14). In this course you will understand the motivation for linear and logistic regression analysis and the theoretical assumptions underlying the specification of a regression model. You will also learn how to estimate the model parameters, how to validate the modeling assumptions, and how to use the estimated regression models to make predictions. Much emphasis will be placed on learning sound techniques for model building and on the use of numerical and graphical diagnostic tools for assessing the adequacy of the model fit.

Prerequisites: To do well in Stat 6450 you need a solid grasp of the elements of probability and statistics covered in an introductory course at the upper undergraduate/first-year graduate level. As an example, you should feel comfortable with the treatment of probability and statistical inference contained in references like DeGroot, M.H., and Schervish, M.J. (2001), *Probability and Statistics* (3rd Ed.), Addison Wesley, and Rice, J.A. (2006), *Mathematical Statistics and Data Analysis* (3rd Ed.), Duxbury Press. (DeGroot and Schervish is the textbook used for Stat 6201 ([sample syllabus](#)) and and Rice is the textbook used for the MAS theory sequence Stat 6301 ([sample syllabus](#)) - 6302 ([sample syllabus](#))).

You will also benefit greatly from being familiar with some basic results from linear algebra. The main reason for this is that linear algebra provides the essential tools for understanding the geometry of the linear model. An excellent reference is Strang, G., (2005), *Linear Algebra and Its Applications* (4th Ed.), Brooks Cole.

Software: Much of the coursework will be of a computational nature. The recommended software is the [R language](#) and environment for statistical computing and graphics. This software is freely available for several platforms, including Windows, Mac OS X, and Linux. Details on the installation and pointers to online documentation and additional resources are given in these [FAQs](#) and on the course web site.

Homework: Problem sets will be regularly assigned, collected, and graded. Late homework will be accepted only under exceptional, documented circumstances.

Midterm Exam: The midterm exam will be on Thursday, October 6, in lecture.

Final Exam: The final exam will be on Monday, December 12, 12:00-1:45, in the lecture classroom.

Grades: The final numerical course grade will be determined according to the following scheme:

Homework	10%
Midterm Exam	40%
Final Exam	50%

Rules and Policies

Academic Misconduct: Please help us to maintain an academic environment of mutual respect, fair treatment, and personal growth. You are expected to produce original and independent work for quizzes and exams. Although students are often encouraged to work together on homework assignments, each student is to submit her/his written work in her/his own words. Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with University Rule 3335-31-02. Please refer to <http://oaa.osu.edu/coamfaqs.html> for additional information on academic misconduct.

Addressing Issues of Differing Abilities: Any students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. Students with documented disabilities must also contact the Office of Disability Services (ODS) in 098 Baker Hall (phone: 292-3307) to coordinate reasonable accommodations for the course. ODS forms must be given to the instructor as early in the quarter as possible to be filled out and returned to you.

Cell phones: Cell phones must be either turned off or put on vibrate during class, as cell phones ringing during class disrupt the learning process.

Recording equipment: The use of any type of recording equipment in the classroom is strictly prohibited. Exceptions will be made for students who need to have access to recordings of the lectures because of documented disabilities. Documentation must be obtained through the Office of Disability Services.

E-mail Correspondence: In order to protect your privacy, all course related E-mail correspondence must be done through a valid OSU "name.number" account. If you have not activated this email account, you can activate it at <https://acctmgmt.service.ohio-state.edu/cgi-bin/KRB1EntryAdd>