

Math 512 - Probability and Statistics

Fall 2013 Course Information

Nicholls State University

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I will be available online on Monday/Wednesday from 1-3 and Tuesday/Thursday from 2-4 (central/Louisiana time) so if you send me correspondence during these times, I should respond quickly. I will endeavor to respond to any questions, comments, or concerns promptly, as soon as I receive them. If you are located in the Thibodaux area, I will certainly be happy to arrange to meet with you in person if you prefer (I may or may not be in my office during my online office hours).

Catalog Description: From the catalog: *MATH 512. Probability and Statistics.*

3-3-0. Prerequisites: MATH 360, and either 402 or 407. Discrete and continuous probability distributions, measures of variability, estimation, hypothesis testing, prediction, introduction to stochastic modeling and operations research, simple and multiple linear regressions, measures of association and correlation, analysis of variance and its relationship to regression analysis.

The official course description above is a bit vague because many of these topics are whole courses in and of themselves! This course will basically be a course on probability theory built from the ground up. I will not assume any deep prior knowledge of probability or statistics.

Basically, we will cover basic combinatorial probability, discrete and continuous distributions, and the central limit theorem.

Internet Delivery: A few words need to be said about the Internet delivery of this course. All assignments, notes, announcements, etc will be posted on Moodle

(<http://moodle2.nicholls.edu/moodle>). Due to the nature of this course, all students enrolled in an Internet course should have basic computer skills. Some tips on preparing yourself for an online course are available at <http://www.nicholls.edu/distance/faqs>. Naturally, since this course is online, it will mainly be self-paced and this will, therefore, require self-discipline and self-motivation on an entirely different level than that required in a traditional lecture course.

It is important that homework is turned in promptly and on time. It is the responsibility of the student to notify the instructor of technical and/or personal problems that may interfere with online participation. All students must check their Nicholls e-mail account regularly as this will be our primary means of communication. Just like a typical class, instances of academic dishonesty, such as plagiarism, will not be tolerated. Sanctions for such behavior are outlined in the Code of Student Conduct (Section 1.9).

Objectives: At the completion of this course, a student should be able to:

1. describe probability spaces as mathematical structures and prove facts about them.
2. compute probabilities using traditional combinatorial techniques.
3. be able to use theory and practices from discrete and continuous random variables to solve a variety of problems and be able to distinguish when to use certain random variables.
4. be able to understand the statement and proof of the central limit theorem and describe its importance (we may not get here).

Prerequisites: The official prerequisites are Math 360 (Linear Algebra) and an upper level undergraduate course in mathematical statistics.

However I will mainly assume that you have a working knowledge of single and multivariable calculus (Calculus I through III) and the mathematical maturity associated with being a graduate student in math (for example, you should feel comfortable with logic, proof and proof techniques, sets, operation on sets, and so forth).

Textbook: The textbook for this course is *A Course in Probability* by Neil A. Weiss (ISBN-10: 0201774712). I recommend that you purchase this book from Amazon.com, Ebay, or Half.com.

Drop Date: The last day to drop this course and receive an automatic **W** is Tuesday, November 5, 2012.

Course Evaluation: Your course grade will mainly be determined by homework (70%), a midterm (15%), and a final exam or a project of some sort (15%). It is therefore extremely important for you to keep up with homework assignments. The midterm will not be proctored but the final exam will be; the whole point of the final is to get you accustomed to the types of questions you may see on the comprehensive exam.

The grading scale for this course will be the usual scale you have likely seen in other courses: [90, 100] is A work, [80, 90) is B work, and so forth.

Homework: Homework assignments will be posted on Moodle and will typically be due once a chapter is complete (see the course schedule). As a rule of thumb, you will generally have a few extra days to finish the previous homework and to begin the new material. Please consult the course schedule for more information.

Homework can be submitted to me by scanning it in and uploading it to Moodle in the form of a PDF (no JPEGs or image files, please). You can also feel free to send it to me via postal service but if you send me homework through the mail, it must be postmarked by the due date. You can also email it to me although I prefer submissions by Moodle. Naturally, if you elect to send it to me electronically, it must be sent to my email address by midnight on the day in which it is due.

Because homework is essential for success in this course and because getting behind can make it seriously difficult for you to progress, late homework will generally not be accepted.

Fine Print: I reserve the right to make changes to this syllabus and to course procedure. I will inform you and make it clear if any changes are made.

Academic Grievances: The proper procedure for filing grade appeals or grievances related to academic matters is listed in Section 5 of the Code of Student Conduct and at the following link:

www.nicholls.edu/documents/student_life/code_of_conduct.pdf

Continued Learning following an Extreme Emergency: In order to make continued learning possible following an extreme emergency students are responsible for:

- reading regular emergency notifications on the NSU website;
- knowing how to use and access Blackboard (or university designated electronic delivery system);
- being familiar with emergency guidelines;
- evacuating textbooks and other course materials;
- knowing their Blackboard (or designated system) student login and password;
- contacting faculty regarding their intentions for completing the course.

faculty are responsible for:

- their development in the use of the Blackboard (or designated) software;
- having a plan for continuing their courses using only Blackboard and email;
- continuing their course in whatever way suits the completion of the course best, and being creative in the continuation of these courses;
- making adjustments or compensations to a students progress in special programs with labs, clinical sequences or the like only in the immediate semester following the emergency.

Disability: If you have a documented disability that requires assistance, you will need to register with the Office of Disability Services for coordination of your academic accommodations. The Office of Disability Services is located in 158A Shaver Gym. The phone number is (985) 448-4430 (TDD 449-7002).