

Statistics and Research Methods

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Course Information Sheet 2017

General Information

Course Overview: Statistics and Research Methods covers the content of an undergraduate statistics course, with an additional emphasis on research methods. Although valuable for anyone who has passed Algebra II or Math III, it is geared for students who plan to major in social science majors in college. It is not intended for as a replacement for Precalculus for students who want to advance in standard calculus-based math tracks in college. Specifically, it does not cover most material on math placement exams, since those exams tend to be mostly algebra-based.

Units of Study: Topics studied include research methods, graphs, descriptive statistics, probability, discrete distributions, normal distributions, sampling distributions, confidence intervals, and hypothesis testing with z , t , r , χ^2 , and F .

Course Level: Statistics and Research Methods is a college-level course that is rigorous in terms of both workload and curriculum. However, many students who have found previous math classes difficult have enjoyed this class because although it is challenging, it is directly applicable. Most problems from the text, notes, and assignments use real data. In addition, because Statistics does not build directly on previous mathematical concepts, students who have struggled with algebra are not at a significant disadvantage as they would be in Precalculus or Calculus. However, the topics within the course build extensively upon each other, more than in most classes, making it difficult for students to catch up if they let themselves fall behind.

Calculator: A graphing calculator is required. Starting in October, students will begin using their own TI-83 or TI-84 calculator in class daily. New TI-84 Plus CE calculators are available for around \$100 on Amazon, and cheaper options are also available by considering used or older models. Other brands of graphing calculators are also available, but are not recommended. Please contact me if acquiring a graphing calculator before October may present a financial hardship for your family.

Assignments

Work done in class (~25%)

- **Classwork:** A set of problems aligned with each section of notes is done together as a class. In addition, a few points are given periodically for things such as class preparation and in-class practice problems.
- **Reviews:** Reviews are done in self-selected groups of four. Each group gets four different versions of the review that are very similar except for being different levels of difficulty, allowing each student to choose one that is at the level that would most help him or her prepare for the test. Reviews also serve as study guides, and students often take it upon themselves later to print one or more of the other versions at home to practice.
- **Team Quizzes:** The last week before each final, students prepare for it in teams. This provides for students struggling on specific concepts to have tutors for these concepts, and it provides strong students to solidify their understandings through explaining the concepts to others.

Work done at home (~25%)

- **Online Quizzes:** Each section has a five-question multiple-choice quiz, based directly on the online notes, to be taken before class. Online quizzes can be resubmitted until a perfect score is achieved.
- **Homework:** There are usually one or two problems sets per week. The primary purpose of the assignments is not to practice skills, but rather to be aware where weak points in conceptual or procedural understanding may lie. Each problem is individually selected, and there is almost no redundancy within assignments. Students should not be concerned if there are a small number of problems they are unsure of in an assignment, but should seek help from classmates or others before the due date if there are many problems they do not understand. Homework is graded on completeness of work shown and on corrections made in class, but not on accuracy.
- **Projects:** In the fall, students in pairs will design a casino game, calculate expected value, and host a casino as a class for an incoming class of students. In the spring, students in teams will design, carry out, and write up an undergraduate-level social-science research project.

Quizzes and Tests (~50%)

- **Quizzes:** To help students stay on top of the material, there is a quiz after each section, usually the following day. The material is reviewed explicitly beforehand.
- **Chapter Tests:** Tests cover both conceptual and procedural aspects of the content. Test scores may be increased afterward by test explanations, in which students carefully explain how to do problems they had originally done incorrectly, as if they were teaching someone else.
- **Final:** Each final covers the whole semester and is worth two chapter tests.

Things to make life easier

Online Materials: Almost all aspects of the course are available at ewyner.com.

Use of Resources: Notes, book, and all electronic devices may be used on all assignments except some tests.

Extensions: Students may request a new due date on any assignment for any reason. The request must be made in person before the original due date, and the new due date can be any date before the day of the test.

Late work: Students can turn in late work any time they are ready, up until the day before the test, and it will be marked down only minimally. To regain points for legitimate excused absences, students can choose to either attach a readmit slip to each assignment when turning it in or to have a total of 20 points added at the end of the semester.

Free C: Students may request a "Free C" on any nontest assignment, in person and prior to the due date, once per grading period. When the assignment is due, it can be turned in normally, or the Free C form can be submitted in its place for a score of 70%.

Score Increases: Quizzes can be retaken, out of a maximum score of 50% higher than the original, until the day before the test. Test scores can be increased by turning in test explanations before the day of the following test.

Study Sessions: At any point, a group of 4 to 12 students can request a formal teacher-led study session, given availability.

Signatures

If you have any concerns, please contact me in person or by email before signing this form.

We have read and understood this course information sheet.

Parent

Name: _____

Signature: _____

Student

Name: _____

Signature: _____

Please return this entire page. It is available online for later reference.