

COURSE DESCRIPTION AND OUTLINE FOR MATHEMATICS 311: STATISTICAL CONCEPTS AND METHODS, 9 O'CLOCK, FALL 2009

PREREQUISITE: Math 130.1

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Office Hours: 8 T-F, 12-12:45 M, T, W, F.

STUDENT OUTCOMES AND PURPOSES OF MATHEMATICS 311: This course is designed to acquaint you with the basic notions of descriptive statistics, statistical thinking and statistical inference. A major goal is to make you an intelligent consumer and appraiser of statistics rather than someone who simply plugs numbers into formulas. This is important, as most people will have far more exposure to other peoples' uses of statistics than they will have to their own. Successful completion of this course will by no means make you a statistician, but *you will know more about statistics than 98% of the general public*. Because Finite Mathematics is now a prerequisite for Math 311, *it is assumed that you have a basic knowledge of elementary probability*. When we apply probability in Math 311, we will not spend much time on these areas that are presumed known. If you did not take your Finite Mathematics here, or do not have a good background in elementary probability, you may be at a disadvantage. You should see me.

ATTENDANCE: To achieve success in *any* mathematics class, **regular attendance is almost imperative**. Unlike most subjects, new topics in statistics build on previous knowledge; failure to learn something early can haunt you throughout the course. I have taught this class many times at several universities and have seen *only one case* where regular attendance did not achieve a passing grade. On the other hand, there have been a large number of students, *with ability, who have not done well because of poor attendance*. While the book is easy to read, *there will be some topics I introduce that are NOT covered in the book*. *You will be responsible for these*. In addition, we will sometimes work in groups, and these groups will not be effective when understaffed. Your fellow group members who depend on you will not appreciate it if you leave them hanging. While you may feel sluggish at 9:00 a.m., do your best to come and be bright-eyed! Feel free to bring coffee, lattes, etc. If you become ill with the flu, I recommend that you seek medical treatment. If you are diagnosed with a flu virus of any kind, it is best to stay home and avoid contact with others until you are well. Please see www.cwu.edu/~police/emergency/h1n1.html to learn more about the steps to take to avoid getting sick or spreading illness. Following these simple precautions will help keep our community healthy and productive.

IF YOU MISS CLASS, IT IS YOUR RESPONSIBILITY TO FIND OUT THE MATERIAL COVERED, ANNOUNCED, OR ASSIGNED, AND TO ARRANGE FOR A CLASSMATE TO PICK UP ANY ASSIGNMENTS THAT MAY BE HANDED OUT OR RETURNED.

WITHDRAWAL: By University policy, you may make an "uncontested withdrawal" by November 6, 2009. By then, you should have a good idea as to how well you are progressing. After November 6th, however, you must petition the Dean of Admissions for withdrawal. Such withdrawals are granted only in compelling circumstances. (The prospect of receiving a poor grade is *not* considered a "compelling circumstance!")

INCOMPLETES: An "I" is appropriate *only* if you have finished almost all of the course requirements, and have a good chance of completing the course without re-enrolling. (Example: missing the final exam due to illness.) The course must be completed within a year; otherwise, the "I" reverts to an "F."

TESTING AND GRADING: There will be three 100-point exams, and a 150-point final exam (Given as scheduled, Thursday, December 10, from 8-10; I will, however, allow you to begin at 7:30). Except in *extraordinarily rare* circumstances, you will not have an opportunity to make up a missed exam. *You will have a minimum of four days notice for all exams*. Note: **PLEASE USE PENCIL ON ALL YOUR EXAMS!**

(Testing and Grading, Continued)

In addition to exams, there will be a group/team MINITAB computer project, valued at 100 points. This makes a total for the quarter of 550 points. In addition, I will award up to 40 **bonus** points, *subjectively, based on classroom participation*. If you attend regularly and participate reasonably well in class discussions, you can expect to get a large portion of these 40 points. If, for example, you get 480 of the 550 points and get 30 bonus points, you will have $480+30=510$ points *out of 550 possible*. If you miss several classes (not due to sickness) and are *not* an active participant, you can expect little, if any, of these bonus points. These are truly bonus points. *There is NO predetermined scale for grades*. A 90% average has earned an A some quarters, but only a B in others. After each exam, you will learn how you are doing relative to the class. Homework assigned should be done but *not* turned in unless specifically requested.

TEXT: The Basic Practice of Statistics, by David S. Moore, Fifth Edition, published by Freeman and Co., 2010. This book is ultra-modern, and is at the forefront of current thinking regarding what should be taught in a beginning course. I will not follow the book section by section, but it will be clear what sections you should read from our class discussions and other information I provide.

COMPUTER/CALCULATOR: We will use the statistical software package MINITAB extensively. Even if you have had no prior computer experience, you will find MINITAB fun, and especially easy to use. You will be encouraged to do any project work in the Computer Lab in Bouillon 103; we will meet there several times during the quarter. The Microsoft Office software in this room will allow you to integrate your statistical work and graphics from MINITAB with text and to produce high-quality, professional-looking documents with a minimum of strain, a skill of importance to you in other courses as well as in the workplace. While other labs on campus may have some of the software, only this lab has MINITAB for Windows, so your statistical work should be done in this lab. **Note:** Many of you will have had some experience with Microsoft Excel. Excel does have extensive statistical capabilities, and while you may choose to explore these, MINITAB is a far superior program for statistics, and if you will ever use statistics on the job (many of you will), it will be worth your while to learn MINITAB. *Having a good calculator is assumed*. The best choice is something like a TI-83 or TI-83 Plus, or TI-84 or something very similar. These two are noteworthy choices for statistical work.

MATERIAL TO BE COVERED: We will cover much of the material in Chapters 1-5, skipping chapter 6. Chapter 7 is essentially a very brief summary of the preceding chapters. We'll hit most of Chapters 8 and 9, skipping only starred sections. Chapters 10-13 are reviews of material covered in Finite math, so we will spend minimal time here. A notable exception to this is Chapter 11 on Sampling Distributions, a topic which is absolutely essential to understanding statistical inference. The last half of the course will cover selected topics from the material in Chapters 14-21. *Most homework will be in the form of handouts/worksheets given in class. Further, I will post copies of these for download on my web site. I will not collect homework unless specifically mentioned.* You should, however, work these problems in order to succeed in the course. We will discuss problems in class as necessary. ***The best possible indication of exam-type problems is given by class examples from your notes along with the worksheets assigned in class.***

ANNOUNCEMENTS: At my web site (<http://www.cwu.edu/~billowen>) I will have announcements, updates, etc. related to the course. Please check frequently, using the link "Updates for Math 311." This is a quick and convenient way to reach all of you.

CELL PHONES: Please be sure to turn off your cell phones before class. It is not only annoying but disrespectful to have a phone ringing during class. Should there be some emergency, please let me know.