**MA-171 Probability and Statistics (W, 04)**
West Science 3602, T Th 7:00 – 8:40 pm
**Course Description**

**Instructor**: William Ellerbruch
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Office: NSF 1005, Office hours will be after class each day, or before class by appt.
Phone: 227-1841 Cell Phone: 361-2455

**Text**: General Statistics, 4th Edition, Chase & Brown.

**Prerequisite**: C- in MA-103 or equivalent

**Course Content**: This course is divided into three Sections and will be covered as much as time allows:

**Section I**: Prerequisite Material
Topics 1. Descriptive Statistics (Chs 1 & 2.1 - 2.8)
2. Probability (Sects 4.1–4.5)
3. Discrete Probability Distributions (Sects 5.2–5.5)
4. Continuous Distributions (Sects 6.1–6.5)
5. Normal Approx to Binomial Distribution (6.6), Central Limit Theorem (Sect 6.7)

**Section II**: Hypothesis Testing and Confidence Intervals
Topics 6. Theory. Mean for one population. (Sects 7.1–7.3)
7. One pop. Mean w/ small samples. Proportions. P-Values. (Sects 7.4–7.6)
8. Two pops: Means, proportions. (Sects 8.1–8.5)

**Section III**: Additional Applications of Statistics
Topics 9. Regression and Correlation. (Sects 3.1–3.4; 9.1, 2, 4, 5, 6)
10. Analysis of Variance (ANOVA). (Sects 10.1, 2, 3)
11. Categorical (Count) Data. (Sects 11.1–11.4)

**Graded Materials**:

| Exercise | Quizzes | Tests | Exam |
|---|---|---|---|
| Number | 3-5 | 2-4 | 1 |
| Points | 75 – 150 | 200 – 400 | 200 |

- All tests and quizzes are comprehensive, but will mainly cover the most recent material.

- Comprehensive Final Exam: Will either be the Tuesday or Thursday evening of exam week during the normal class time.

A calculator or the laptop will be required on all graded materials. If the laptop is used for graded exercises in place of a calculator the screens will be watched closely and any attempt to collaborate or misuse the laptop will result in a zero on the exercise and a report of cheating filed.

**Academic Expectations**: I expect the average student to do about one to two hours of outside preparation for each hour of class time. Experience has shown that it is beneficial to form study groups to discuss the material and work on problems together. The **Math Lab** (WS-3810) is a special room that has been set aside as a mathematics study room. There will be a tutor there to answer questions. I will help you with problems and answer questions during class, after class, and during my office hours. You may also email or telephone me. You should do all (or most) of the assigned problems though these will not be collected. Brief answers to odd-numbered problems are in the back of the text.

**Grade Cutoffs:**

| A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 93 | 90 | 87 | 83 | 80 | 77 | 73 | 70 | 67 | 63 | 60 | <60% |

**Attendance**: Attendance is required in this course. For students who have perfect attendance, their final grade will be raised one half of a letter grade. You must complete all graded materials at their scheduled times. Makeups will only be allowed in the case of extreme circumstances. In such a case, you must notify me before the test/quiz/exam that you will be missing (A cell phone message is best.)

**Calculators**: A calculator is highly recommended for this course. I recommend a Texas Instruments TI-89 or TI-84 plus calculator but any calculator will do if it has statistical functions for two or more variables (at least mean, standard deviation and regression and correlation, the more the calculator will do the less you will need your laptop.) If you need help with your calculator, bring it and the instruction manual to my office or to the Math Lab. The programs, Minitab and TI Interactive, that the University has provided and that you should have installed on your laptop, may be used instead of a calculator for graded exercises. However, the laptop is much more cumbersome to use than a handheld statistical calculator. If you don't have a calculator, you will have to bring your laptop to class each day and have Minitab or TI Interactive ready to use during the class period. Minitab will be used in Unit 10 and possibly in Units 7, 8 and 9.

**Useful Websites:**
http://www.ticalc.org/archives/files/fileinfo/84/8442.html
http://www.wiley.com/college/stat/chase28310X/resources.html

**Further Notes**: Bring your text, calculator and notebook (for your class notes and homework solutions) to every class and your laptop as needed.

**This course satisfies the Formal Communication Studies requirement.**

These courses are designed to introduce students to the ways in which information and ideas are expressed using a communication system other than English. Such courses should foster the student's ability to conceptualize and communicate in an orderly, rational manner. Characteristics of a communication system include: 1) possession of a grammar; 2) operation from an established set of rules; 3) reasoning properties such as deduction, inference drawing and problem solving. This includes courses in languages and those in which the central focus of the course is on statistics, computers or formal logic.

**DISABILITY SERVICES**

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 2001 C. B. Hedgcock (227-1700; TTY 227-1543). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state and University guidelines.