Math 111
Elementary Probability and Statistics
Fall 2008, Section 1
CRN 19093
Ohlendorf 225
MWF 8:00-8:50

Instructor: Dr. Christopher Mouron
Office: 320 Ohlendorf Hall
Office Hours: MWF 1:00-2:00 PM, TTh 10:00-11:00 AM, or by appointment
Phone: x3720
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Text: Statistics, Principles and Methods, by Richard A. Johnson and Gouri K. Bhattacharyya, Edition 5e. John Wiley & Sons, Inc.
Additional Resource: The Cartoon Guide to Statistics, by Larry Gonick and Woollcott Smith. Harper Perennial.

Course Description: Statistics is the science of gaining information from numerical data. Our modern technological world generates data at an enormous rate. Newspapers, business meetings, and governmental committee meetings are often inundated with data. However, all too often the data is improperly obtained and improperly assessed. Important everyday decisions for individuals, corporations, societies, and governments hinge on a proper understanding and assessment of data. Every facet of industry, science, engineering, economics and business benefits from a solid knowledge of statistics. This is why there are more statisticians employed in the United States than mathematicians from all other branches of mathematics combined. The material in this course will benefit students for actuarial exams and university courses in economics, engineering, biology or psychology which require statistical methodology.

The course includes three parts: descriptive statistics, probability theory and inferential statistics. Descriptive statistics are summary values that describe features of the distribution based on the data sample. These include mean, standard deviation, median, skewness and quantiles. Probability theory is the development of models for "chance variations" or "random phenomena". Inferential statistics is then the drawing of conclusions beyond what the data provides.

Course Content: We will cover the following topics:

Descriptive statistics: representation of data, measures of center, measures of variation.

Bivariate data: linear regression, correlation coefficient, method of least squares.

Probability: random variables, expected value, Bernoulli trials

Distributions: binomial, normal, student *t,* chi-squared and F distributions.

<u>Sampling</u>: sampling distribution, the central limit theorem, confidence intervals.

<u>Inferences from samples</u>: hypothesis testing, large sample inferences, small sample inferences.

<u>Analysis of categorical data</u>: Pearson's goodness of fit, contingency tables.

<u>Analysis of variance</u>: comparison of several treatments, simultaneous confidence intervals.

Technology: We will use Microsoft Excel and Mathematica. Both can be found installed on most computers on campus. You may also use a calculator; however, you must show your work on tests and homework.

Course Prerequisites: High School Algebra II, Knowledge of Transcendental Functions.

Attendance Policy: I will follow the College's attendance policy, which can be found on page 70 of the Catalogue. In particular, a student will be giving a warning after 7 absences and a written recommendation to the Dean may be made that the student be dropped from the course is class attendance does not improve. In the case of a missed test, the student will be allowed to make-up the test only if both of the following conditions are satisfied:
   1) I am contacted before the test is given (at least 1 week in the case of absence due to the attendance of an official school function.)
   2) I am given proper documentation.
 Finally, the student is responsible for all material and notes due to an absence. Get the notes from another student. Come to my office for any materials handed out in class.

Homework, Labs and Quizzes (11%): Mathematics is not a spectator sport. In order to learn the techniques and concepts, the student must work problems outside of class. The student is expected to spend at least 3 hours outside of class for every hour spent in class.

   1) Practice exercises. These are problems that the student should do before the next class meeting. If a student has difficulty with an exercise, the student may ask me to do it in class (provided time allows) or in my office.
   2) Graded exercises. These problems will be collected usually once a week. Due to the fact that I have 80 students, it is imperative that the work turned in is neat and organized. The student will be graded on correctness of the work. Also the student is required to show all work leading to an answer. The students may work together on these problems but the work turned in must be the students own, i.e. no copying. Copying homework will be considered an honor violation and students suspected of copying homework will be referred to the Honor Council. Also, if student do work together on homework, they must document who they worked with.

3) Pop quizzes. If it is evident to the instructor that the students are not keeping up with the homework, a pop quiz may be given.

Also, the student is expected to "pre-read" the text before the lecture. This is a excellence way for the student to familiarize him/herself will the material covered and will aid the student in following the lectures.

Written Projects (10%): There will be 2 projects that will consist of longer, more involve applications of statistics. These projects must be typed and will be graded on correctness of the mathematics and written exposition. Rough drafts submission will be optional.

Late homework and projects will not be accepted. You will have plenty of time to complete assignments to turn in. If you are sick, have a roommate, classmate or friend turn in your homework for you. If they can get it to me before noon, it will be accepted. I f you plan to miss class for other reasons, turn in the homework early or have a classmate turn it in during class.

Tests (54%): There will be 3 tests throughout the semester. Unless otherwise notified, the test will be closed book and notes. The tentative test dates are:
1) September 26
2) October 24
3) December 3

Final Exam (25%): The final exam will be cumulative. Unless otherwise notified, the exam will be closed book and notes. The final exam will be Tuesday, December 16 at 1:00 pm.

Grades: Grades will be earned for the following percentages:

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

Math Support Center: The Math Support Center is a free help session run by students in the evenings. It is a place to enhance your understanding of the concepts of the course. However, it is not a place to get the answer for the work that is to be turned in.
The tutor for Math 111 is Albernie Ferguson. Her hours in the Math Support Center are 9pm-10:30pm Sunday and Thursday.

Honor Code: The student is expected to conduct him or herself within the guidelines of the College's Honor Code. If you have any questions about what is or not allowed, please ask.

If you have a documented disability and wish to receive academic accommodations, please contact myself and the Office of Student Disability Services as soon as possible.