COURSE SYLLABUS

Statistics **– STAT 203**
Fall Semester, 2007, Tuesdays and Thursdays, 10:00 – 11:15am in Damen Hall, Room 828.
Prerequisite: Calculus II (Math 132 or 162 or equivalent).
Text: Buntinas & Funk, *Statistics for the Sciences*, 2005, Thomson/Brooks/Cole, ISBN: 0-534-38774-8.

Instructor: Dr. Timothy E. O'Brien   Email: tobrie1@luc.edu
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Office Hours: Mondays 2.30-3.30pm, Tuesdays and Thursdays 11.30am – 12.30pm, and by apptmt.
Course Web Page: **http://www.math.luc.edu/~tobrien/courses/stat203/course-homepage.html**

Course Overview

Using tools from Calculus, this introductory course covers the basics of experimental design and sampling theory, introductory probability, point and interval estimation, hypothesis testing, correlation and regression, and statistical modeling. In so doing, science students are given a clear picture of what the field of statistics entails and are exposed to the types of problems and decisions that can be answered using statistical methods.

Although the emphasis in this course is on theoretical justifications in probability and inference, students will occasionally be required to analyze real-life data sets and perform simulation studies using the *Minitab* statistical package, the *R* free-ware language, and the *Mathematica* program, although no familiarity with these packages will be assumed. Grading will be based on homework assignments, quizzes and exams, and a course paper.

Homework, Quizzes and Exams

Homework assignments will be given approximately weekly, graded and returned to students in a timely manner. The first quiz will be given on 20th September and cover Chapters 1-5, and the Midterm exam will be given on 18th October and cover the first ten chapters in the text. If a student performs better on the Midterm than on the first quiz, then the Midterm grade will replace the First Quiz grade for that student. The same rule will apply for the Second Quiz and the Final Exam. The Final Exam will be comprehensive.

Grading Scheme

Homework	25 %
First Quiz	10 %
Midterm Exam	20 %
Second Quiz	10 %
Final Exam	25 %
Course Paper	10 %

Final course (letter) grades will be awarded according to the following grading scheme:

[92.5 , 100] = A	[90.0 , 92.5) = A-	
[87.5 , 90.0) = B+	[82.5 , 87.5) = B	[80.0 , 82.5) = B-
[77.5 , 80.0) = C+	[72.5 , 77.5) = C	[70.0 , 72.5) = C-
[67.5 , 70.0) = D+	[60.0 , 67.5) = D	[0.0 , 60.0) = F

Participation

Students are expected to attend all classes and to actively participate in classroom discussion. It is expected that students will read the lecture material before class so as to better benefit from the class lecture and discussion.

Computing

Students will develop the ability to analyze data sets using the *Minitab* software package and perform simulations in *R* and *Mathematica*, although no previous exposure to these packages will be assumed. Students may also use a calculator (such as a TI-84).

Academic Honesty

It is presumed and required that students do their own work on the homework assignments and all exams. Discussing homework problems with others is encouraged; however, submitting work as your own which is copied or paraphrased from someone else is not permitted. This means students may <u>discuss</u> homework problems, but each must <u>write up</u> his/her solutions alone and in one's own words. Neither discussing nor copying related to quiz or exam questions is permitted. Cheating includes, but is not limited to, illegal collaboration, copying, using materials not permitted on tests, and assisting others on tests. Anyone found cheating will not be permitted to withdraw and will receive an "F" grade for the course. Your academic dean will be informed and a statement will be placed in your permanent file.

Preliminary Semester Schedule (with Chapters from Text in parentheses)

Tuesday	Thursday
28 Aug – Intro and Describing Data (1 & 2)	30 Aug – Center and Dispersion (2)
4 Sept – Introduction to Probability (3)	6 Sept – Probability (3)
11 Sept – Discrete variables, Bernoulli (4 & 5)	13 Sept – Discrete variables, Binomial (4 & 5)
18 Sept – Discrete variables, Hypergeometric (4 & 5)	20 Sept – Hypotheses (6); *Quiz 1 (Chapters 1-5)*
25 Sept – Hypothesis Testing (6)	27 Sept – Continuous RVs (7)
2 Oct – Normal RVs (8)	4 Oct – Waiting Time RVs (9)
9 Oct – **No Class – Fall Break**	11 Oct – Two or More RVs (10)
16 Oct – Two or More RVs (10)	18 Oct – *Midterm Exam (Chapters 1-10)*
23 Oct – Sampling Distributions (11)	25 Oct – Sampling Distributions (11)
30 Oct – Z and t Tests (12)	1 Nov – Confidence Intervals (13)
6 Nov – Confidence Intervals (13)	8 Nov – Two-sample Inference (14)
13 Nov – Correlation and Regression (15)	15 Nov – Correlation and Regression (15)
20 Nov – Regression (15); *Quiz 2 (Chapters 11-15)*	22 Nov – **No Class – Thanksgiving Break**
27 Nov – Categorical Data (16)	29 Nov – Categorical and Resampling (16 & 17)
4 Dec – Resampling Methods (17)	6 Dec – Statistical Modelling (outside material)
Final Exam – Tuesday 11th December from 1.00 to 3.00 pm – the Final Exam is comprehensive	

Note #1: Quizzes will be 45 minutes in length, and the Midterm will be 75 minutes. All quizzes and exams will be closed-book, but students are permitted to use one double-sided 8 ½ x 11" sheet of their own handwritten notes.

Note #2: The last day that a student may withdraw without a penalty grade of "WF" is Friday, November 2nd.