

**COURSE CHANGE
GENERAL EDUCATION**

Proposal for a Course Change

Department Mathematics and Computer Science **Date** December 19, 2007

Original Submission Resubmission Date of Original Submission _____
Date of Implementation Fall 2008

Retroactive? (If yes, please specify) _____

I. Proposed Course Change Information

	CURRENT	PROPOSED CHANGE
Discipline Prefix	<u>MATH</u>	_____
Course Number	<u>171</u>	_____
Course Title	<u>Statistical Decision Making</u>	_____
Credit Hours	<u>3</u>	_____
Prerequisite Course	<u>None.</u>	_____
Speaking Intensive	<u>No.</u>	_____
Writing Intensive	<u>No.</u>	_____
If Cross-Listed:		
Secondary Prefix	_____	_____
Course Number	_____	_____

Course Description: Current description: **Mathematics 171. *Statistical Decision Making.*** An elementary statistics course designed to show the student how statistics is used in problem solving and decision making. Topics include measures of central tendency and variability; elementary probability concepts; the binomial, normal and Chi-square distributions, correlation and regression; and hypothesis testing. Special emphasis is placed upon the proper use of statistics in real life situations. 3 credits. *

Proposed description: **Mathematics 171. *Statistical Decision Making.*** An elementary statistics course designed to give students a working knowledge of the ideas and tools of practical statistics and their usefulness in problem solving and decision making. Topics include graphical displays of data, measures of central tendency and variability, elementary probability concepts, the normal distribution, correlation and regression, and confidence intervals and hypothesis testing for means and proportions. Special emphasis is placed upon the proper use and interpretation of statistics in real life situations. 3 credits. *

Delete Course from Catalog Submit to Storage
 Remove Course from Storage, Add to Catalog

General Education Goal(s) for which course is designed: 5

Does the proposed change affect how the course will satisfy the nine (9) required General Education Course Criteria (page 12)? If so, please explain: **No. The change just more thoroughly reflects the material currently taught.**

Please attach a proposed syllabus in SACS format that contains proposed changes.

II. Required for Major, Minor, Concentration (please specify): Option for Kinesiology majors.

III. Rationale for Proposed Changes: A more accurate description of the course content fueled these changes.

IV. Resource Assessment, if change warrants it:

A. How frequently do you anticipate offering this course? Every semester.

B. Describe anticipated change in staffing for the course: None.

C. Estimate the cost of new required equipment due to change: None.

D. Estimate the cost of and describe additional library resources: None.

E. Will the change in the course require additional computer use, hardware or software?

If so, please describe and estimate cost: No.

V. Approvals

	Date Rec'd	Signature	Date	Approved
1. Department Curriculum Committee Chair	_____	_____	_____	_____
2. Department Chair	_____	_____	_____	_____
The Department Chairs, whose programs may be affected, have been notified:				
Department	<u>Health, Recreation, and Kinesiology</u>	Date Notified	<u>January 9, 2008</u>	
Department	_____	Date Notified	_____	
Department	_____	Date Notified	_____	
3. College Dean	_____	_____	_____	_____
4. College Curriculum Committee	_____	_____	_____	_____
5. General Education Committee	_____	_____	_____	_____
6. Educational Policy Committee	_____	_____	_____	_____
7. Faculty Senate Chair	_____	_____	_____	_____
8. Date received by Registrar	_____			

Proposals must be submitted early enough to reach EPC by March 1 in order to be included in next year's catalog.

MATH 171 - Statistical Decision Making

Class Syllabus - Fall 2008

Course Description: *Statistical Decision Making.* An elementary statistics course designed to give students a working knowledge of the ideas and tools of practical statistics and their usefulness in problem solving and decision making. Topics include graphical displays of data, measures of central tendency and variability, elementary probability concepts, the normal distribution, correlation and regression, and confidence intervals and hypothesis testing for means and proportions. Special emphasis is placed upon the proper use and interpretation of statistics in real life situations. 3 credits. *

In order to increase the likelihood of success in this course it is recommended that the student attend class without fail, religiously work the homework, read the textbook, focus on understanding the concepts (not just the rote computations), and seek help from the professor and other sources (tutoring, library, textbook CD and/or website, etc.) when needed.

Learning Objectives: This course will give students a working knowledge of the ideas and tools of practical statistics. Students will learn to:

- present and interpret data graphically (using histograms, scatterplots, stemplots, and boxplots) including identifying outlier data
- compute and interpret measures of center, spread and correlation
- identify response and explanatory variables and find, use and interpret the least squares linear regression line of a response variable on an explanatory variable
- apply basic concepts of probability to find probabilities using the normal distribution
- explain and use the Central Limit Theorem in relation to the sampling distribution of the sample mean
- use the basic tools of statistical inference including confidence intervals and tests of hypotheses for populations means (z and t procedures) and population proportions.

Prerequisites: Since this is a general education course, there are no prerequisites for the course.

Professor: Dr. M. Leigh Lunsford. For Dr. Lunsford's office location, phone number, email address, schedule (including office hours), and other general information, go to her homepage: <http://www.mathspace.com/Lunsford/>

Meeting Times and Locations: This semester I am teaching three sections of this course:

- Section 01, MWF 8:00-8:50 am, Ruffner 350
- Section 02, MWF 10:00-10:50 am, Ruffner 350
- Section 03, MWF 11:00-11:50 am, Ruffner 350

Course Textbook: *The Basic Practice of Statistics, Fourth Edition*, by David S. Moore. Your book for this class should have come bundled with an **Activation Code** for the Stats Portal.

Stats Portal: Students enrolled in the above sections of MATH171 are required to use the Stats Portal. The Stats Portal is located at the site: <http://courses.bfwpub.com/bps4e.php> . Please be sure to see the Stats Portal Activation Directions before trying to access the Stats Portal. We will be using the data sets, applets, and Excel macros on the Stats Portal. You will also be required to complete some of your homework and quizzes online via the Stats Portal. Please see the Homework and Quizzes information below for more details.

Required Technology/Computer Configurations:

- A **TI-83, TI-83 Plus or TI-84 graphing calculator is required** for this course. If you do not use one of these then you will be responsible for knowing how to use your particular calculator.
- You may be using **Microsoft Excel** for your Final Project. Please make sure Excel is configured with the **Data Analysis Add-in** (if it is not already on your machine then this should be on your Excel or Microsoft Office installation CD or the Longwood IT department can provide this add-in to you).
- You will need to have **Microsoft Word** installed on your computer in order to complete your Final Project.
- Make sure your computer is configured to run the **statistical applets on the Stats Portal**.

Determination of Course Grade:

45% - Two In-Class Exams (22.5% Each)

10% - On-line Homework (Pre-Tests and Post-Tests)

10% - Quizzes

10% - Hand-In Final Project

25% - Comprehensive Final Exam

Grades will be assigned on a ten point scale (90's A; 80's B; 70's C; 60's D; 50's and below F).

Honor System: I expect you (and your partners on the hand-in final project) to conform to the Longwood University Honor System as contained in the Student Handbook. All material handed in to me, including on-line work, falls under the honor code.

Homework: Homework for this class falls into two categories: *Practice Homework* and *Online Homework*.

Practice Homework: Your practice homework assignments will be given on the Practice Homework page of this website. **Your practice homework will not be graded thus you will not be required to hand-in your practice homework.** However, just like with anything else worthwhile in life, one must practice to become proficient at mathematics. After I have finished covering a chapter, you should endeavor to work all problems assigned from that section before the next class period. You should not have more than 1 or 2 problems which you cannot work. If you cannot work all but 1 or 2 of your homework problems then you need to see me for help before the next class period! I encourage you to work together on your practice homework.

On-line Homework: When we start covering a chapter I will assign a Pre-Test for the chapter. You will be able to take the Pre-Test as many times as you wish. The highest score you receive on the Pre-Test will be your score for the Pre-Test. The Stats Portal will provide feedback to you regarding your answers on the Pre-Test. After we have completed a chapter I will assign a

Post-Test for the chapter. You will only have two attempts to complete the Post-Test. Each Pre-Test will count 5 points towards your homework grade and each Post-Test will count 100 points towards your homework grade. I will drop your lowest Post-Test grade when computing your final homework grade.

Quizzes: Approximately every two weeks a short (15 to 20 minute) quiz will be given in class or online via the Stats Portal. Occasionally an assignment to be completed outside of class will count as a quiz (such as Easy Quiz 1 and an occasional hand in assignment). These quizzes will be based on your homework assignments and our class discussions. I will try to give at least one class period notice for an in class quiz (please see the Stats Portal page for the latest information on quiz dates). Once a quiz has been graded and returned to the students, there will be no make-ups for that quiz, period. All quizzes must be pledged. I will drop your lowest quiz grade when computing your final homework grade.

Make-up Quizzes/Homework: Because I will be dropping your lowest grade for computation of your Homework and Quizzes averages, there will not be any make-up quizzes or homework. If you have a legitimate University sponsored event in which you must participate (such as a sporting event) scheduled on the same day as an In-Class quiz, then please see me about taking the quiz early. Once the quiz has been given in class, you cannot take it. Also, if a hand-in assignment is due on a day when you will not be able to come to class, then please make sure you hand in your assignment to me before the class meeting.

In-Class Exams: A minimum of a one week notice will be given for exam dates. Please see the class schedule below for the tentative exam dates (for more detailed information about test dates see the Assignments page or the Calendar in Stats Portal). Except in the case of an emergency, a make-up exam must be scheduled before the scheduled exam date. If the exam has already been given and you have not previously scheduled a make-up, then you will receive a zero on that exam.

Final Project: You will have a hand-in final project that you will be working on during the course of the semester. You may work in a team of up to three students (including yourself). Around midterm I will have you hand-in the work on your project to date. The project will involve either self collected data or relatively large data sets and thus will be done via the use of computer technology.

Final Exam: The final exam for this course will be comprehensive. You cannot miss the final. Failure to take the final exam will automatically result in an F grade for the course. Please see me as soon as possible if you have a conflict with the final exam date.

Extra Credit: Extra Credit will NOT be given - period.

Attendance & Excused Absences: You are expected to attend every class. If you miss classes it will most likely be reflected in your grades (i.e. you will perform poorly). The following college attendance policy will be followed per the Class Attendance section of the Academic Regulations chapter of the Longwood University Undergraduate Catalog: Missing 10% of class meetings **may** result in a lowering of one letter grade. Missing 25% of class meetings for any reason **will** result in an automatic "F" for the course. Absences are excused only for illness, college sponsored activities, and recognizable emergencies. You must have the proper documentation for an excused absence. Student Health Services can provide documentation *only*

for students hospitalized locally or absent at the direction of Student Health Services personnel. You must also assume full responsibility for all material covered during your absence, including scheduling any early in-class quizzes or make-up exams. A grade of "0" will be assigned for all work missed due to unexcused absences.

Resources for Students Learning Statistics:

- **Me! I want you to consider me to be your number one resource!** In addition to seeing me during my office hours, you are welcome to call me or send me email if you have questions about your homework. If you are unable to see me during my office hours please make an appointment with me!
- The Stats Portal contains many resources to go with the text including Microsoft Excel and TI Graphing Calculator Manuals, a Study Guide, and an eBook. I will also be posting the slides I use in class under the Resources tab on the Stats Portal and also on the Practice Homework page. If you print these slides, please try to print at least six to a page to save paper and ink.
- There is a link above to a page that contains Sample Quizzes and Tests given in previous MATH171 classes. These are in pdf format.
- **Longwood's Learning Center:** The Learning Center offers free tutoring for MATH171 - please see [their website](#) for more details.

Office of Disability Services: Any student who feels s/he may need an accommodation based on the impact of a physical, psychological, medical, or learning disability should contact me privately. If you have not already done so, please contact [Longwood's Office of Disability Support Services](#) to register for services.

Class Schedule: Below is a **very tentative** class schedule. This schedule may change due to class pace, etc. However, it is provided here for your information. For a more detailed schedule depending on our actual classroom interaction please see the Calendar page of the Stats Portal.

Week of Class	Topics Covered	Corresponding Chapters in Textbook
1	Course Introduction Graphical and Numerical Displays of Data	Chapters 1 & 2
2	More on Graphical and Numerical Displays of Data The Normal Distribution	Chapters 2 & 3
3	More on the Normal Distribution Scatterplots and Correlation	Chapters 3 & 4
4	Regression	Chapter 5
5	Producing Data: Sampling and Experiments	Chapters 8 & 9
6	Review for Test 1 Test 1	
7	Probability and Sampling Distributions	Chapters 10 & 11

8	More on Probability and Sampling Distributions Introduction to Inference - Confidence Intervals	Chapters 11 & 14
9	Introduction to Inference - Hypothesis Testing Inference in Practice	Chapters 15 & 16
10	Inference About a Population Mean	Chapter 18
11	Inference about a Population Proportion	Chapter 20
12	Review for Test 2 Test 2	
13	Two Sample Problems Comparing Two Proportions	Chapters 19 and 21
14	Review for Final Exam	
15	Final Exam	