

**Math 114 Statistics for Business
Syllabus Spring 2008**

Prerequisite: You must have passed ISPM101 to take this course.

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Blackboard: This course will be maintained on blackboard (www.MyTulane.blackboard.com). Be sure to check this site for assignments, announcements, policy updates, etc.

Lab Instructors:

Excel Lab Instructors:

Text: McClave, Benson, Sincich, Statistics for Business and Economics, 10th edition

Required Calculator—TI-83 or TI-84

Software—You will be using MS Excel in the Excel lab. Excel is widely used in the business school. If you have Excel on your own computer and wish to use it on other problems, be sure to go to Add Ins in the Tools dropdown menu in Excel and activate the Data Analysis Toolpack. We encourage you to do this but do not require this.

Course goals: This course will cover the treatment of data. The course divides into three parts. In part I we will go over graphical and numerical methods of summarizing data, key issues involved in the collection and use of data. In part II we will cover the theoretical context needed for inference—i.e. the background needed to carry out the drawing of formal conclusions from data. In part III we will cover methods of drawing conclusions from data. Specifically we will cover statistical methods for the analysis of means and proportions from one or two populations, and linear regression.

At the end of the course you should be aware of basic issues in statistics and common pitfalls, and you should be proficient in the presentation and analysis of data from one and two populations and from linear regression.

What is expected from you: you should be proficient in algebra and the use of MS Excel. You are expected to attend all classes, Excel labs and homework labs, especially Excel labs. You are expected to complete all assignments. When matters come up that you do not understand you are expected to take the initiative to ask questions in class or outside of class.

Quizzes: there will be a quiz each homework lab period; your top 10 quiz scores will be added to count as one test score—i.e. 10% of your semester grade.

Excel labs: You will be given assignments and other work in the Excel lab, and receive a grade for your Excel lab work. This grade will count 20% of your grade for Math 114.

Tests: there will be three in class during the term: Wed Jan 30, Wed Feb 27, Wed Apr 16. Each test will count 10% of your semester grade.

Homework: Collected each homework lab ; your homework score will count 5% of your final grade

Final Exam: Friday May 2, 8AM-noon; will count 35% of your final grade. Note that all 100-200 level math courses have final exams at this same time. If you are taking more than one such course, the department will make arrangements later in the term to deal with this.

Grading Policies: Your semester average is calculated by the following scheme: Final Exam 35%, Excel lab score 20%, in class tests 10% each; quiz total 10%, homework total 5%. The grade scale is 90-100 A, 80-89 B, 60-79 C, 50-59 D, below 50 F. In the event I am convinced you know the subject beyond what your semester average indicates (e.g. by a very strong performance on the final exam) I will increase your grade accordingly. However a dismal Excel lab performance cannot be overcome by an excellent job on the final exam.

Makeup Policies: NO MAKEUPS. No late homework, no makeups on quizzes as we are counting only the top 10 quizzes. No makeups on in class tests—in the event of an excused absence from a test, we will determine your grade from your remaining work. All students must take the final exam to pass the course.

Topics Covered

Group I—Collecting and summarizing data

Ch 1 Elements of Statistics sec 3 populations, units, variables, samples
sec 5 types of data—qualitative, quantitative
sec 6 collecting data –observational studies, experimental studies

Ch 2 Describing and summarizing data

sec 1 Qualitative data—frequency tables and bar charts
sec 2 Graphical methods for quantitative data—stem and leaf displays, frequency tables and histograms, relative frequency tables and relative frequency histograms
sec 3 Summation notation
sec 4 measures of central tendency for quantitative data—mean, median, mode skewed data and its effect on mean and median
sec 5 measures of variability for quantitative data—range, variance and standard deviation. Population variance versus sample variance
sec 6 interpreting the standard deviation—Chebyshev’s Rule, Empirical Rule
sec 7 measures of relative standing—percentile, z-score

sec 8 graphing bivariate relationships—scatterplots, slope, trend

Group II—Theoretical Context for formal statistics

Ch 3 Express Coverage of Probability (so that we can get to more statistics) Frequency interpretation of probability, events, complement, intersection, union, addition rule, independent events, multiplication rule for independent events

Ch 4 Random Variables

Sec 1 discrete and continuous random variables

Sec 2 probability distributions for discrete random variables; mean, variance and standard deviation of a discrete random variable

Sec 3 binomial distribution; mean, variance, standard deviation of a binomial random variable

Sec 7 normal distribution for a continuous random variable

Sec 8 descriptive methods and plots to assess normality

Sec 9 normal approximation to the binomial distribution

Sec 11 sampling distribution of the sample mean and the Central Limit Theorem

Distribution of the sample proportion

Group III—Inference

Ch 5 Confidence intervals from one sample

Sec 1 identifying the parameter

Sec 2 large sample confidence intervals on the mean

Sec 3 small sample confidence intervals on the mean

Sec 4 large sample confidence intervals on proportions

Sec 5 finding the necessary sample size

Ch 6 Hypothesis tests from one sample

Sec 1 elements of a hypothesis test

Sec 2 large sample tests on the mean

Sec 3 p-values

Sec 4 small sample tests on the mean

Sec 5 large sample tests on proportion

Sec 6 power of a test

Ch 7 Confidence intervals and tests from two samples

Sec 1 identifying population parameters

Sec 2 comparing population means from independent samples

Sec 3 comparing population means by paired samples

Sec 4 tests comparing population proportions from large independent samples

Ch 10 and supplementary notes Linear regression

Sec 2,3 simple linear regression

Sec 5 inference on the slope parameter

Notes: multiple linear regression; working from a multiple linear regression printout