

# MATH 1103-01 - Introduction to Statistics (Spring 2012)

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Prerequisites: Math 0940 (old 99) or Math 0820 (or old Math 96) OR recommendation of assessment test. [Some exposure to computers particularly the windows environment is strongly recommended.]

Rooms: Lecture: **LA128** 9–9:50am MWF Lab: **B114** 1-1:50pm W Office Hours: 10-10:55am M-F

Course Description: Presents basic statistics course for business management, economics, education, psychology, science or sociology majors. Topics include descriptive and graphical statistics, basic probability, probability distributions, sampling distributions, confidence intervals, hypotheses testing, linear regression, chi-square tests, and ANOVA. Approximately 20 hours of computer time outside of the class is required for Minitab proficiency.

Learning Outcomes: **The student will be able to:**

1. demonstrate an understanding as well as apply basic principles of probability, probability distributions (including binomial and normal distributions), and the concept of expected value;
2. determine appropriate confidence intervals for measures of central tendency and for proportions of one or two populations;
3. perform appropriate hypothesis testing for measures of central tendency and for proportions of one or two populations;
4. demonstrate the appropriate use of the Chi-Square test;
5. determine regression equations and use them appropriately;
6. use graphical and arithmetic measures to determine the appropriate analysis for the data under consideration;
7. demonstrate the appropriate use of the Analysis of Variance method for testing the equality of three or more population means;
8. use statistical software extensively to simulate, graph, sample and analyze data and calculate basic probabilities.

Minnesota Transfer Curriculum Goal #2 (Critical Thinking):

- a) gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.
- b) imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems
- c) analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them
- d) recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others

Minnesota Transfer Curriculum Goal #4 (Mathematical/Logical Reasoning):

- b) clearly express mathematical/logical ideas in writing
- c) explain what constitutes a valid mathematical/logical argument (proof)
- d) apply higher-order problem-solving and/or modeling strategies

Text: *Elementary Statistics* by Triola 11th ed.

Content: Selected topics from Chapters 1–12

Materials: A calculator that performs statistical analysis & *MyStatLab* Access code (packaged with text)

Class procedures: Lecture, discussion, & lab sessions with limited time for questions.

Attendance: **You are EXPECTED TO ATTEND ALL CLASSES!** Attending class, coming well prepared and eager to learn with a good attitude are major characteristics of successful students.

Grading Policies: There will be three exams given during the quarter worth 100 points each. Short quizzes worth 10 points each will be given periodically in class with the lowest 25% being dropped. There will also be 15 online quizzes utilizing your MyStatLab account with the best 12 of these quizzes accounting for 120 total points. There will be several lab assignments given that will total approximately 125 points and a 'hands on' MINITAB final exam worth 75 points. A group statistics project with presentation toward the end of the semester will be worth 50 points. A

written comprehensive final exam worth 150 points will be given on Tuesday, May 8<sup>th</sup> from 7am-10am. Your grade is based on a percentage of the approximately 900 total points:

90% - 100%: **A**            80% - 89%: **B**            70% - 79%: **C**            60% - 69%: **D**            < 60%: **F**

**Responsibilities:** Students are expected to be in class every time we meet. Homework assignments will be given every day but usually not collected. It is essential that students keep current with homework assignments. I suggest you keep a spiral notebook containing all homework problems neatly completed. This notebook should be brought to class each day and a separate notebook should be kept for classroom notes. You should plan on spending 2 - 3 hours outside of class per class day completing homework and learning the required skills.

**Make-up work:** Lectures and labs will be given only once. If you miss class, it is your responsibility to get notes from a classmate, and do the necessary reading and homework. There are **NO** make-up quizzes. Make-up exams will be given only in **EXTREME** circumstances when arrangements have been made with me **prior to the exam** (or ASAP) and will receive no partial credit!

**Online Quizzes:** We will be using the MyStatLab software to complete some online chapter quizzes. A demonstration of the software may be given early in the term. All work for this part of the course may be completed on the campus computers or at home if you have internet access.

**Lab Assignments:** Students are required to become proficient with the statistical package Minitab in order to perform the statistical procedures presented in the course. Lab assignments will be collected, graded and **WILL NOT BE ACCEPTED LATE**. You may need to go to the computer lab (use the computers in the Math Learning Center when it is open) on your own time to complete these assignments. Otherwise an option for renting or purchasing the Minitab software for your home will be discussed in the first week of class. Approximately 20 hours of computer time outside of class will be needed to complete these assignments.

**Other help:** Please make use of the Math Learning Center and Peer Tutoring services located on the second floor of the library building. These services are **FREE** and can also be enhanced if you form a study group with fellow classmates that meet in the Learning Center. Also **utilize my office hours** as soon as you realize you are having trouble.

**Cheating Policy:** Cheating is covered by the Student Code of Conduct. In this course, students suspected of cheating will receive a zero on the graded work and will also result in the initiation of the Student Code of Conduct process.

**Withdrawals and Incompletes:** Students must initiate requests for a withdrawal from this course by filing the appropriate form **by April 18**. I will consider individual requests for an incomplete ***only in extenuating circumstances*** and if satisfactory progress in the course has been made. (See college policy)

**Classroom etiquette:**

1. Be on time for class. Entering late is a distraction that disrupts the learning environment.
2. **TURN OFF CELL PHONES!** (See above rule)
3. In lab, don't "play" on the computers during class time. Check your e-mail, Facebook, etc on your own time.
4. Be courteous and respectful.

**The following steps are necessary for the successful completion of this course:**

1. Stay current on all material.
3. **PARTICIPATE** in class discussions.
3. Explore the possibility of getting involved in a study group.
4. Keep careful notes and complete all assignments (including online) on time.
5. Ask questions.
6. Have some **FUN** with math! Bring any related and interesting articles or examples to class.

**Any student with "special needs" that could affect their success in this course is encouraged to contact me or Tim Boyer (DSS office 450-3628) to discuss the situation.**