# Course Syllabus

## Course Information

STAT 1342.001 – Monday and Wednesday, 8:30 – 9:45 PM, (SSA 13.330)
Call Number: 20948
Course Title: Statistical Decision Making
Term: Fall 2020

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## Professor Contact Information

*(Professor's name, phone number, email, office location, office hours, other information)*
James W. Miller, jwm170630@utdallas.edu
Office: FA 2.106 Office Hours: On-Line or E-Mail

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## Course Pre-requisites, Co-requisites, and/or Other Restrictions

MATH 1306 or MATH 1314, or equivalent

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## Course Description

Principles of quantitative decision-making: summarizing data, modeling uncertainty, loss functions, probability, conditional probability, random variables. Introduction to statistics: estimation, confidence intervals, hypothesis testing, regression. Introduction to statistical packages. May not be used to satisfy degree requirements for majors in the School of Engineering and Computer Science, or major requirements in the Schools of Management or Natural Sciences and Mathematics.

### Student Learning Objectives/Outcomes

This course will give students a working knowledge of the ideas and tools of practical statistics. Students will develop skills listed below.

- Graphical presentation of data – histograms, stem and leaf display, scatter plots for regression data.
- Explanation of NUMERICAL SUMMARIES (such as mean, median, variance and standard deviation, correlation and regression summaries.
- Basics in Probability Theory (probability rules, independence and conditional distributions, continuous distributions and density functions, random variables, and their expected values, as well as other moments).
- Sampling distributions of various statistics with application of statistical inferences based on descriptive statistics.
- Statistical Inferences (such as hypothesis testing and confidence intervals).

## Required Textbooks and Materials

1. Understanding Basic Statistics (by C. H. Brase and C. P. Brase) 7th Edition (or 6th Edition)
2. **ISBN:** 978-1-305-25406-0 / **ISBN** 13: 978-1-111-82702-1
3. (Additional Source) Fundamentals of Statistical Thinking: Tools and Applications (by Yuly Koshevnik) First Edition. **ISBN**: 9781516511631. The book is now available for purchase in both print and digital formats through the student e-commerce store (https://students.universityreaders.com/store/).

Textbook, lecture notes, calculator, and scratch paper should be used during each class session.
Lecture Notes will be posted online

## Assignments & Academic Calendar

*(Topics, Reading Assignments, Due Dates, Exam Dates)*
There will be four exams based on topics and problems considered in class and included in homework and quizzes. Exams will be given in class or may be taken online using the Honorlock online proctoring service.
There will be two homework assignments and two quizzes prior to each exam, for a total of eight homework assignments and eight quizzes. Homework assignments will be posted on E-Learning one week before they are due and may be turned in during class or uploaded as a scanned PDF in eLearning by noon on the due date.
Quizzes may be taken in class or online using the Honorlock online proctoring service on the due date and will be subject to a 20 minute time limit.

## Grading Policy

**Homework assignments (15%)**: Average score taken over your seven best assignment scores in a **100-point** scale contributes **15%** into overall grade. Your lowest homework grade will not count in the average. Only one or two homework problems from each assignment will be graded, and you won't know which problems will be graded in advance.
**Quizzes (15%)**: Average score taken over your seven best quiz scores in a **100-point** scale contributes **15%** into overall grade. Your lowest quiz score will not count in the average.
**Exams (70%)**: Your lowest exam score will contribute **10%** into your overall grade and each of the remaining three exams will contribute **20%** into your overall grade.
No make-up homework and no make-up exam (unless a special arrangement is made prior to the due date). Exam grades can be discussed until the next exam.

**Grading Scale:**

| [97, 100] | [93, 97) | [90, 93) | [87, 90) | [83, 87) | [80, 83) | [77, 80) | [73, 77) | [70, 73) | [67, 70) | [63, 67) | [60, 63) | [0, 60) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A+ | A | A - | B+ | B | B - | C+ | C | C - | D+ | D | D - | F |

## Course & Instructor Policies

*(Make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)*

Each exam and quiz is taken in class or online using the Honorlock proctoring service. You may not use the textbook or notes when taking a quiz or exam in class or online. NO MAKE-UP (unless special arrangements are made). Students with disabilities may be eligible for special services through the OSA. Please check with the Student Accessibility Office.

Although there is no extra credit for attendance, you are expected to attend the class and be active during each session. It is entirely your responsibility to catch up with the course material that you missed and then use instructor's office hours to clarify the topics covered in class.

*This course will use Honorlock – an online exam proctoring tool. To successfully take an exam, you must have a web camera with microphone, a laptop or desktop computer (no tablets/phones), Chrome browser, a reliable internet connection and your photo ID. You will be prompted to install the Honorlock Chrome Extension (which you can remove after you finish the test). You will then access the exam within your eLearning course and go through the authentication process. The web camera will monitor you throughout your test. Please see the Testing Guidelines and Support Information for additional information.*

## UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

***The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.***

| Important Dates & Holidays | |
|---|---|
| Classes Start | Monday, Aug 17 |
| Labor Day | Monday, Sep 7 |
| Exam 1 | Monday, Sep 14 |
| Exam 2 | Wednesday, Oct 7 |
| Exam 3 | Monday, Nov 2 |
| Exam 4 | Wednesday, Nov 25 |
| Last Day of Classes | Wednesday, Nov 25 |
| Thanksgiving Holidays | Nov 26 – Nov 29 |

**Course Calendar**

| Monday Date | Wednesday Date | Topic |
|---|---|---|
| Aug 17<br>Syllabus Review/Chapter 1 | Aug 19<br>Chapter 2 | Graphical and Tabular Descriptive Techniques |
| Aug 24<br>Sections 3.1, 3.2/HW 1 Due | Aug26<br>Section 3.3/Quiz 1 Due | Numerical Summaries |
| Aug 31<br>Section 4.1/HW 2 Due | Sep 2<br>Section 4.2/Quiz 2 Due | Correlation and Regression |
| Sep 7<br>LABOR DAY | Sep 9<br>Exam One Review | |
| Sep 14<br>**EXAM ONE** | Sep 16<br>Chapter 5 | Probability Rules/Distributions |
| Sep 21<br>Sections 6.1, 6.2/HW 3 Due | Sep 23<br>Section 6.3/Quiz 3 Due | Binomial Distribution with Applications |
| Sep 28<br>Sections 7.1, 7.2, 7.3/HW 4 Due | Sep 30<br>Sections 7.4, 7.5, 7.6/Quiz 4 Due | Normal Curves and Sampling Distributions |
| Oct 5<br>Exam Two Review | Oct 7<br>**EXAM TWO** | |
| Oct 12<br>Sections 8.1, 8.2 | Oct 14<br>Section 8.3 | Estimation and Confidence Intervals |
| Oct 19<br>Sections 9.1, 9.2/HW 5 Due | Oct 21<br>Section 9.3/Quiz 5 Due | Hypothesis Testing: Z and T Tests |
| Oct 26<br>Section 10.1/HW 6 Due | Oct 28<br>Exam Three Review/Quiz 6 Due | Matched Pairs |
| Nov 2<br>**EXAM THREE** | Nov 4<br>Section 10.2 | Comparing Two Population Means |
| Nov 9<br>Section 10.3/HW 7 Due | Nov 11<br>Section 11.1/Quiz 7 Due | Comparing Population Proportions |
| Nov 16<br>Sections 11.2, 11.3/HW 8 Due | Nov 18<br>Section 11.4/Quiz 8 Due | Various Chi-Squared Tests |
| Nov 23<br>Course Review | Nov 25<br>**EXAM FOUR** | |