

Course Syllabus for STAT 1342, Statistical Decision Making Summer 2016

The content of this syllabus may change at the discretion of the instructor.

Class location and times:

Mondays & Wednesdays, 3:00pm – 5:15pm | GR 3.420 | Monday May 23 to Monday August 8

Instructor information:

Dr. Tristan Whalen | Office: FN 2.206 | Email: tgw100020@utdallas.edu

Please include 1342.0U1 in every email you send to me.

Office Hours are by appointment in summer semesters.

Course prerequisites:

College Algebra (MATH 1306 or MATH 1314 or equivalent)

Course content:

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.

Learning objectives:

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

- Graphical presentation of data (histograms, stem and leaf display, scatter plots)
- Explanation of numerical summaries (mean, median, variance, standard deviation, correlation, regression)
- Basics in probability theory (probability rules, independence and conditional probability, distributions, continuous distributions and density functions, random variables and their expected values)
- Sampling distributions of various statistics with application of statistical inferences based on descriptive statistics
- Statistical inferences (hypothesis testing, confidence intervals)

Required materials:

Textbook: *Understanding Basic Statistics*, C.H. Brase and C.P. Brase, Seventh Edition.

Scientific Calculator: A scientific calculator is permitted on quizzes and exams. No other devices (e.g., smartphones, graphing calculators) are permitted.

Computer and internet access: for email announcements and course materials in elearning.

Homework:

Access homework online in elearning. Print it out, complete the problems, and submit it in class. Homework is only accepted in class at the due date and time.

Quizzes:

A quiz will be given in class about once per week.

Exams:

Exams will occur in class on the following dates:

(7) Exam 1: Monday June 20 (6) Exam 2: Monday July 18 (5) Exam 3: Monday August 8

Grading:

15% Homework average
10% Quiz average
25% Exam 1
25% Exam 2
25% Exam 3

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

Assignment and grade policies:

- There are no make-ups of quizzes. Your lowest quiz grade is dropped to account for an emergency.
- There are no make-ups of homework. Your lowest homework grade will be dropped.
- Do not miss an exam. There are no make-ups of exams unless the circumstances are extraordinary.
- There is no final exam.
- I have no plans to offer extra credit.
- I do not give free points or round grades. I follow the grade standards given above to keep things fair for all students.
- A scientific calculator is permitted on quizzes and exams, but no other devices or notes are permitted.

Classroom policies:

- Attendance is strongly recommended. Exams are based on the content and examples covered in class. If you choose not to attend class, it is your responsibility to drop the course.
- Put away and silence all mobile devices (smartphones, laptops, etc.) during class.
- Avoid leaving class early or coming in late.
- Participation in class is desired: avoid side conversations and instead raise your hand to speak.

Instructor email and office policies:

- I encourage you to email me throughout the course for help. You may also request an office appointment.
- Please, include your course number and section number in every email to me.
- I will not have office hours during this summer semester. However, I am available by appointment on school days, and can stay after class if there are many questions.

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.

<http://go.utdallas.edu/syllabus-policies>

Tentative Summer 2016 Topics:

Chapter 1	Getting Started
1.1	What is Statistics?
Chapter 3	Averages and Variation
3.1	Measures of Central Tendency (Mode, Median, Mean)
3.2	Measures of Variation
3.3	Percentiles and Box-and-Whisker Plots
Chapter 4	Correlation and Regression
4.1	Scatter Diagrams and Linear Correlation
4.2	Linear Regression and Coefficient of Determination
Chapter 5	Elementary Probability Theory
5.1	What is Probability?
5.2	Some Probability Rules—Compound Events
5.3	Tree Diagrams and Counting Techniques
Chapters 1-5	Exam 1
Chapter 6	The Binomial Probability Distribution and Related Topics
6.1	Introduction to Random Variables and Probability Distributions
6.2	Binomial Probabilities
6.3	Additional Properties of the Binomial Distributions
Chapter 7	Normal Curves and Sampling Distributions
7.1	Continuous Random Variables, Graphs of Normal Probability Distributions
7.2	Standard Units and Areas Under the Standard Normal Distribution
7.3	Areas Under Any Normal Curve
7.4	Sampling Distribution
7.5	The Central Limit Theorem
7.6	Normal Approximation to the Binomial Distribution and to $\hat{p}$ Distribution
Chapter 8	Estimation
8.1	Estimating μ When σ is Known
8.2	Estimating μ When σ is Unknown
8.3	Estimating p in the Binomial Distribution
Chapters 6-8	Exam 2
Chapter 9	Hypothesis Testing
9.1	Introduction to Statistical Tests
9.2	Testing the Mean μ
9.3	Testing a Proportion p
Chapter 10	Inferences about Differences
10.1	Tests Involving Paired Differences (Dependent Samples)
10.2	Inferences about the Difference of Two Means $\mu_1 - \mu_2$
10.3	Inferences about the Difference of Two Proportions $p_1 - p_2$
Chapters 9-10	Exam 3