

BLOCK: C, Tuesday, Wednesday, Friday, 9:30–10:20 a.m. in BP-2.

INSTRUCTOR: Andrew Sánchez

EMAIL: andrew.sanchez@tufts.edu

OFFICE: Bromfield-Pearson, Room 207

OFFICE HOURS: Tuesdays, Wednesdays 10:30 a.m. – 11:30 a.m., Thursday 1:20 – 2:20 p.m.

COURSE WEBSITE: <http://webhosting.math.tufts.edu/asanchez/Math21.html>

PREREQUISITES: High school course in elementary algebra.

TEXT: Mario F. Triola, *Elementary Statistics*, 12th Edition, Pearson Education, Inc. (2014).

ISBN: 978-0-321-83696-0

COURSE DESCRIPTION: This course will cover frequency distributions, histograms, mean, standard deviation, variance, measures of relative standing and boxplots, an introduction to probability, the binomial and Poisson probability distributions, the standard normal distribution, the Central Limit Theorem, the normal approximation to the binomial, confidence intervals, hypothesis tests for one or two populations, correlation, and regression.

HOMEWORK: Problem sets will be assigned on a weekly basis. You may work on them in groups, but must turn in your own copy with your own words and writing. The homework will be due at the beginning of class on Tuesdays. Late homework will not be graded unless there is a reason accepted by the instructor. In order to get credit, you will need to show all your work and give a clear explanation of how you arrive at a result. Each problem set will be graded for a total of 50 points.

Homework will be collected using folders handed out in class. Please mark your folder with the course and section numbers as well as an identifier to help you know that it is your folder—something that is likely unique to your section and something that is pronounceable in case your instructor chooses to return homework folders by calling out the identifiers. Please write it as clearly as possible and make sure to tell your instructor well before the end of the semester what your identifier is so credit associated with it can be counted towards your course grade.

Feel free to use your name as your identifier, but expect that unless you are told otherwise, the homework folders are handed off between instructor and grader in a way that does not ensure their confidentiality (usually by way of drawers in the lobby of the Bromfield-Pearson building). Your educational record is privileged information under the federal Family Educational Rights and Privacy Act (FERPA), and using your name as identifier means that you opt out of being guaranteed the confidentiality of the information on and in your homework folder.

EXAMS: There will be two in-class midterms and a final. There will be no make-up exams. If the exam dates for Math 21 happen to conflict with an exam you have in another course, let me know as soon as possible.

Midterm 1: **Wednesday, October 7, 2015**, 9:30–10:20 a.m.

Midterm 2: **Friday, November 13, 2015**, 9:30–10:20 a.m.

Final: **Thursday, December 17, 2015**, 12:00–2:00 p.m.

Each exam is worth 100 points. You will not be allowed to use any calculators, books, or notes on the exams.

If you are requesting an accommodation due to a documented disability, you must 1) let me know and 2) register with the Student Accessibility Services Office as soon as possible; to do so, call the Student Services Desk at 617-627-2000 to arrange an appointment with Linda Sullivan, Program Director of Disability Services.

LEARNING OBJECTIVES: This course fulfills the Mathematics Learning Objectives 1acde, 2a, and 6, as outlined in the document <http://ase.tufts.edu/faculty/committees/objectives/math.htm>

GRADES: At the end of the semester, the lowest two homework grades will be discarded and your homework grade will be the average of the remaining homework scores times two. Your numerical grade will be computed according to the following formula:

$$\max\{10\%Hw + 30\%M1 + 30\%M2 + 30\%F, \\ 10\%Hw + 20\%M1 + 20\%M2 + 50\%F\},$$

where M1 and M2 are your midterm scores and F is your final exam score. If you must miss a midterm for a reason accepted by the Mathematics Department, then there is only one midterm score M, and we instead use the following formula: $\max\{10\%Hw + 45\%M + 45\%F, 10\%Hw + 30\%M + 60\%F\}$. Your numerical grade will be converted into a letter grade according to the conversion chart given at <http://math.tufts.edu/courses/gradingSchemes.htm>

ATTENDANCE: You should attend all classes since each lecture in this course depends on all preceding lectures. Missing a few classes may make it impossible for you to understand subsequent lectures.

ACADEMIC HONESTY: You are required to sign your exam. With your signature you are pledging that you have neither given nor received assistance on the exam (See Tufts Academic Integrity Handbook). Students found violating this pledge will receive an F in the course and will be reported to the Dean of Students.

SEXUAL MISCONDUCT: Sexual Misconduct, including Sexual Assault, is a form of discrimination based on sex or gender that violates federal Title IX regulations and is prohibited by Tufts policy. Tufts is committed to providing an education and work environment that is free from sexual misconduct (see Tufts Sexual Misconduct Policy). Title IX requires by federal law that sexual violence and harassment are subject to the same kinds of support and same accountability measures as any Civil Rights offense.

If you or someone you know has been harassed or assaulted, you may call in confidentiality the Tufts Counseling and Mental Health services at (617) 627-3360 or Tufts' Ears for Peers at (617) 627-3888 during business hours. The Boston Area Rape Crisis Center at (800) 841-8371 is on call 24/7.

DEADLINES:

Tuesday, September 22: Last day to add

Tuesday, October 13: Soph., Jr., Sr. Pass/Fail deadline; Soph., Jr., Sr. drop without W

Tuesday, November 17: First-year Pass/Fail deadline; First-year drop without W

Friday, December 11: Drop with W

UPDATED: September 13, 2015

TENTATIVE SCHEDULE:

Day	Topics	Sections
9/8/15	Introduction	1-All
9/9/15	Frequency distributions	2-1 2-2
9/11/15	Histograms, graphs	2-3, 2-4
9/15/15	Measures of center	3-1, 3-2
9/16/15	Standard deviation and variance	3-3
9/18/15	Measures of relative standing and boxplots	3-4
9/22/15	Basic concepts of probability, addition rule	4-1,4-2, 4-3
9/23/15	Multiplication rule: complements and conditional probability	4-4, 4-5
9/25/15	Counting	4-6
9/29/15	Probability distributions, binomial probability distribution	5-1, 5-2, 5-3
9/30/15	Parameters for binomial distributions	5-4
10/2/15	Poisson probability distribution	5-5
10/6/15	Review for Midterm Exam 1	Ch 1 to 5
10/7/15	Midterm Exam 1	
10/9/15	The standard normal distribution	6-1, 6-2
10/13/15	Applications of normal distributions	6-3
10/14/15	Sampling distributions and estimators	6-4
10/16/15	The Central Limit Theorem	6-5
10/20/15	Assessing normality	6-6
10/21/15	Normal as approximation to binomial	6-7
10/23/15	Estimating a population proportion	7-1, 7-2
10/27/15	Estimating a population mean	7-3
10/28/15	Estimating a population standard deviation or variance	7-4
10/30/15	Basics of hypothesis testing	8-1, 8-2
11/3/15	Testing a claim about a proportion	8-3
11/4/15	Testing a claim about a mean	8-4
11/6/15	Testing a claim about a standard deviation or variance	8-5
11/10/15	Review for Midtern Exam 2	Ch 6 to 8
11/11/15	No Class (Veterans Day)	
11/13/15	Midterm Exam 2	
11/17/15	Two Proportions	9-1, 9-2
11/18/15	Two means: independent samples	9-3
11/20/15	Two dependent samples (matched pairs)	9-4
11/24/15	Two variances or standard deviations	9-5
11/25/15	No Class (Thanksgiving)	
11/27/15	No Class (University Holiday)	
12/1/15	Correlation	10-1, 10-2
12/2/15	Regression	10-3
12/4/15	Prediction intervals and variation	10-4
12/8/15	Multiple regression	10-5
12/9/15	Nonlinear regression	10-6
12/11/15	Review for Final Exam	Ch 1 to 10