

Professor

- Chad Worley
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Section

- MAT-098 / MAT-181
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Class Materials

- OpenIntro Statistics 3rd Edition
www.openintro.com
The textbook is free to download. You can buy paper copies for about \$15 on Amazon. I also have copies to lend.
- A scientific calculator is needed. I recommend the TI-36x Pro (\$25 online). With a smart phone, you can use Geogebra Scientific Calculator. You will need to put your phone on airplane mode to use this during tests. If you cannot afford a calculator and do not have a smart phone, please send me an email for assistance.

Important Dates

- Tests: Feb 21, Mar 28, Apr 25
- Final exam: May 16
- Holidays: Feb 18, Mar 18-21, Apr 15
- Project proposal: Mar 14
- Project paper: May 9
- Project presentations: May 8-9

Grade Weights

- Tests (30%)
- Final exam (20%)
- Homework (20%)
- Attendance/in-class work/participation (20%)
- Project (10%)

Schedule

We will likely stick to this schedule very closely. If there is a snow day, you will watch that chapter's video (and/or read the chapter) and complete the exercises. You should expect to spend at least 5 hours on homework each week.

Most days have the chapter we will discuss and the homework exercises. The homework exercises are at the end of the given chapter. The homework is due the following class.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
<i>Jan 21st</i> Martin Luther King Jr. Day	<i>Jan 22nd</i> #1 Ch 1.1 Ex 1.1-1.2	<i>Jan 23rd</i> #2 Ch 1.2 Ex 1.3-1.8	<i>Jan 24th</i> #3 Ch 1.3 Ex 1.9-1.16
<i>Jan 28th</i> #4 Ch 1.4 Ex 1.17-1.29	<i>Jan 29th</i> #5 Ch 1.5 Ex 1.30-1.37	<i>Jan 30th</i> #6 Ch 1.6 Ex 1.38-1.47	<i>Jan 31st</i> #7 Ch 1.6 Ex 1.48-1.64
<i>Feb 4th</i> #8 Ch 1.7 Ex 1.65-1.68	<i>Feb 5th</i> #9 Ch 1.8 Ex 1.69-1.70	<i>Feb 6th</i> #10 Ch 2.1 Ex 2.1-2.8	<i>Feb 7th</i> #11 Ch 2.1 Ex 2.9-2.14
<i>Feb 11th</i> #12 Ch 2.2 Ex 2.15-2.21	<i>Feb 12th</i> #13 Ch 2.2 Ex 2.22-2.26	<i>Feb 13th</i> #14 Ch 2.3-2.4 Ex 2.27-2.35	<i>Feb 14th</i> #15 Ch 2.5 Ex 2.36-2.44
<i>Feb 18th</i> Presidents Day	<i>Feb 19th</i> #16 Review Review	<i>Feb 20th</i> #17 Review Review	<i>Feb 21st</i> #18 TEST
<i>Feb 25th</i> #19 Ch 3.1 Ex 3.1-3.8	<i>Feb 26th</i> #20 Ch 3.1 Ex 3.9-3.16	<i>Feb 27th</i> #21 Ch 3.2 Ex 3.17-3.18	<i>Feb 28th</i> #22 Ch 3.3 Ex 3.19-3.24
<i>Mar 4th</i> Snow Day	<i>Mar 5th</i> #23 Ch 3.4 Ex 3.25-3.30	<i>Mar 6th</i> #24 Ch 3.4 Ex 3.31-3.36	<i>Mar 7th</i> #25 Ch 4.1 Ex 4.1-4.6
<i>Mar 11th</i> #26 Ch 4.2 Ex 4.7-4.16	<i>Mar 12th</i> #27 Ch 4.3 Ex 4.17-4.23	<i>Mar 13th</i> #28 Ch 4.3 Ex 4.24-4.32	<i>Mar 14th</i> #29 Proposal Due Ch 4.4 Ex 4.33-4.42
<i>Mar 18th</i> Spring Break	<i>Mar 19th</i> Spring Break	<i>Mar 20th</i> Spring Break	<i>Mar 21st</i> Spring Break
<i>Mar 25th</i> #30 Ch 4.5 Ex 4.43-4.48	<i>Mar 26th</i> #31 Review Review	<i>Mar 27th</i> #32 Review Review	<i>Mar 28th</i> #33 TEST
<i>Apr 1st</i> #34 Ch 5.1 Ex 5.1-5.7	<i>Apr 2nd</i> #35 Ch 5.1 Ex 5.8-3.14	<i>Apr 3rd</i> #36 Ch 5.2 Ex 5.15-3.24	<i>Apr 4th</i> #37 Ch 5.3 Ex 5.25-3.31

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
<i>Apr 8th</i> #38 Ch 5.3 Ex 5.32-3.38	<i>Apr 9th</i> #39 Ch 5.3 TBD	<i>Apr 10th</i> #40 Ch 5.4 Ex 5.39-5.14	<i>Apr 11th</i> #41 Ch 5.5 Ex 5.41-5.52
<i>Apr 15th</i> Patriots Day	<i>Apr 16th</i> #42 Ch 6.1 Ex 6.1-6.11	<i>Apr 17th</i> #43 Ch 6.1 Ex 6.12-6.22	<i>Apr 18th</i> #44 Ch 6.2 Ex 6.23-4.30
<i>Apr 22nd</i> #45 Ch 6.2 Ex 6.31-4.38	<i>Apr 23rd</i> #46 Ch 6.5-6.6 Ex 6.51-6.56	<i>Apr 24th</i> #47 Review Review	<i>Apr 25th</i> #48 TEST
<i>Apr 29th</i> #49 Ch 7.1 Ex 7.1-7.9	<i>Apr 30th</i> #50 Ch 7.1 Ex 7.10-7.18	<i>May 1st</i> #51 Ch 7.2 Ex 7.19-3.30	<i>May 2nd</i> #52 Ch 7.3 Ex 7.31-3.34
<i>May 6th</i> #53 Ch 7.4 Ex 7.35-3.44	<i>May 7th</i> #54 TBD	<i>May 8th</i> #55 Presentations	<i>May 9th</i> #56 Paper Due Presentations
<i>May 13th</i> #57 Review Review	<i>May 14th</i> #58 Review Review	<i>May 15th</i> #59 Review Review	<i>May 16th</i> #60 Final Exam

Course description

This course covers statistical concepts and methods. Topics include being able to summarize and analyze data distributions both numerically (averages and variation) and graphically. Evaluating linear equations while understanding the concepts of slope, intercepts, inequalities, correlation and regression will be discussed. The concept of probability and probability distributions will be introduced for both discrete and continuous variables. Other topics include: binomial, normal, and t-distributions; estimation and hypothesis testing. This course meets General Education “Quantitative Thought” Requirement Area 4. Prerequisite: A grade of C or better in Foundations of Mathematics (MAT093) or placement. Credit hours: 6

Instructional Objectives

1. Identify types of data
2. Identify the measurement level of a variable
3. Identify basic sampling techniques
4. Organize data using frequency distributions
5. Represent frequency distributions graphically
6. Represent data using bar graphs
7. Summarize data using mean, median, and mode

8. Describe data using range, variance, and standard deviation
9. Identify the position of a data point by using percentiles and standard scores
10. Produce stem and leaf displays and box and whisker plots
11. Determine the number of possible outcomes using a tree diagram
12. Find the total number of possible outcomes using the multiplication rule
13. Calculate the number of permutations of n things taken r at a time
14. Calculate the number of combinations of n things taken r at a time
15. Determine sample spaces
16. Find the probability of an event using relative frequencies
17. Find the probability of a compound event
18. Find the conditional probability of an event
19. Construct a probability distribution for a discrete random variable
20. Find the expected value and standard deviation for a discrete random variable
21. Calculate binomial probabilities
22. Find the mean and standard deviation for a binomial distribution
23. Identify the properties of a normal distribution
24. Find the area under the standard normal distribution for various intervals
25. Transform a normally distributed random variable into a standard normal variable
26. Find specific data values for given areas under a normal distribution
27. State the Central Limit Theorem
28. Use the Central Limit Theorem to solve problems involving the distribution of the sample mean for large samples
29. Use the normal distribution to approximate probabilities for a binomial
30. Distinguish between point estimates and interval estimates
31. Find the confidence interval for μ with σ known
32. Find the confidence interval for μ with σ unknown
33. Structure a classical test of hypothesis
34. Test means for one-sample (using large and small samples)
35. Test for a proportion

36. Test the difference between means for dependent samples
37. Find the equation of the least squares regression line
38. Compute the standard error of the estimate
39. Find the confidence interval for the dependent variable
40. Compute the linear correlation coefficient
41. Test for a significant linear correlation
42. Compute the coefficient of determination

Project

You will have a semester-long project. You will perform an experiment (RCT) and report the results in a paper and presentation. The proposal is due before spring break. The paper will follow the abstract-background-method-result-discussion format.

Student code of conduct

All students are expected to adhere to the honor code regarding course assignments and exams. This includes completing assignments without unauthorized aid when instructed. Any student suspected of cheating on an assignment or an exam will not pass that assignment or exam.

Individuals with a disability

Bunker Hill Community College is committed to providing equal access to the educational experience for all students in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990

College Accommodations and Support Services

The Office of Disability Support Services is a student-focused department dedicated to assisting members of the BHCC community with documented physical and/or learning disabilities. Students may be eligible for services that include tutoring, testing and other classroom accommodations. To get more information or request an accommodation, contact the Disability Support Services Office at 617-228-2327 (Room E222). Students are encouraged to request accommodations as early as possible and ideally before the start of the semester. For information about programs and services please visit: <http://www.bhcc.mass.edu/disabilitysupportservices/>.