Cambridge College
New England Institute of Business

Course Syllabus

MAT305 Statistics

Syllabus Overview

This syllabus contains all relevant information about the course: its objectives and outcomes, the grading criteria, the texts and other materials of instruction, and weekly topics, outcomes, assignments, and due dates. Consider this your roadmap for the course. Please read through the syllabus carefully and ask questions if you would like anything clarified. Please print a copy of this syllabus for reference.

Course Description

3 Credits

Prerequisite: MAT103 Business Math

This course provides an introduction to statistical concepts and methods. Topics covered in this course include the importance and relevance of statistics, data collection, using charts and tables to present data, numerical descriptive measures, basic probability, discrete probability, distributions, the normal distribution, confidence intervals and hypothesis testing with an introduction to Simple Linear Regression.

Course Outcomes

At the completion of this course, students should be able to:

- Describe the purpose of statistics in business decision making.
- Define key statistical terms.
- Evaluate tables and charts for accuracy in visually representing numerical and categorical data.
- Analyze correlation vs. causation.
- Describe the properties of central tendency, variation and shape in numerical data.
- Compute descriptive statistics for a population.
- Describe the covariance and coefficient of a correlation.
- Compute and revise probabilities.
- Use the normal distribution to solve business problems.
- Conduct statistical analyses using Simple Linear Regression.
- Apply statistical principles and processes in a real-world business context.

Communication with Your Instructor

You will receive a welcome email from your instructor prior to the start of class. This email will contain your instructor's contact information. Your instructor will also be communicating with you via several methods in the course, including:

- **Announcements** – This communication tool, located on the navigation menu within your course in Canvas, contains important updates. Be sure to check for new announcements from your instructor each time you access your course.

- **Q&A** – Use this discussion board, located on the Home screen in your course, to communicate with your instructor and classmates regarding general course questions (i.e. missing links, assignment clarification, etc.).

- **Inbox** – Use the Inbox, located in the top right corner of Canvas, to send a message to your instructor or classmates.

Materials and Resources

Required or Supplemental Text or Resources:

Levine, D.M., Krehbiel, T.C., & Berenson, M.L. (2015). Business Statistics: A First Course (7th ed.). Upper Saddle River, NJ: Pearson

- MyStatLab Access Card (PearsonEducation)

  To register for MyStatLab, you will need:

  - A MyStatLab student access code
  - Your instructor's Course ID
  - Your email address

Need help with MyStatLab?

Contact Product Support at http://www.mystatlab.com/student-support support for live chat, email, or phone support.

Bookstore Information

The bookstore can be located in the left-hand navigation of any Canvas course.

Library Services

Detailed information about the eLibrary can be found in the Student Resource Center. This is a course that all students have access to during their academic career.

Canvas Help Desk and Technical Questions

If you experience technical issues in your course, please contact the Canvas Help Desk by clicking the Help link (top right corner within Canvas). There are 3 ways to contact them:

- Phone (888-628-2749)
- Live chat
- Report a problem (submit a ticket)

Be sure to notify your instructor of any technical difficulties you are experiencing.

Additional resources are available in the Student Resource Center and the Canvas Guides website: https://community.canvaslms.com/docs/DOC-4121

Weekly Schedule

Week 1	Introduction to Business Statistics
Outcomes	- Explain the purpose of statistics in business decision making Apply key statistical terms - Demonstrate categorical and numerical data by generating summary tables, graphs, bar charts, scatterplots, and boxplots - Differentiate optimal methods for visually displaying various types of business data - Evaluate visual data displays and provide recommendations
Readings	- Chapter 1 - Chapter 2 - MyStatLab Orientation Exercises 1-9
Lectures	Lecture 1: Introduction to Using Statistics in Business Lecture 2: Presenting Data in Tables and Charts
Discussion	**Graphical representations**
Assignments	**Chapter Post-Tests** **MyStatLab Homework #1**

Week 2	Using Descriptive Statistics
Outcomes	- Describe types and uses of descriptive statistics - Summarize categorical and numerical data by calculating means, medians, modes, ranges, variances, and standard deviations - Interpret categorical and numerical data using descriptive statistics and visualizations - Analyze the difference between correlation and causation in a real-world context
Readings	- Chapter 3 - Chapter 4 - Correlation vs. Causation Articles
Lectures	Lecture 1: Introduction to Descriptive Measures Lecture 2: Applying Correlation vs. Causation in Research Scenarios
Discussion	**Correlation or Causation**
Assignments	**Complete the Chapter Post-Tests.** **Complete the MyStatLab Homework #2**

Week 3	Discrete Probability Distributions
Outcomes	- Explain the ethical issues involved in publicly reporting probability statistics Describe basic probability concepts - Compute expected values and variances using conditional probabilities, Bayes' theorem and various counting rules - Apply conditional probabilities, Bayes' theorem and various counting rules to solving business problems
Readings	• Chapter 5
Lectures	Lecture 1: Basic Probability Lecture 2: Using Distributions to Solve Business Problems
Discussion	**Public reporting of probability statistics**
Assignments	**Chapter Post-Tests.** **MyStatLab Homework #3** **Research Proposal**

Week 4	The Normal Distribution
Outcomes	- Compute probabilities using the normal distribution - Apply the normal distribution to business decision making
Readings	• Chapter 6
Lectures	Lecture 1: Continuous Probability Distributions Lecture 2: The Normal Distribution
Discussion	**Normal distribution assumptions**
Assignments	**Chapter Post-Tests** **MyStatLab Homework #4** **Research Proposal**

Week 5	Sampling and Sampling Distributions

Outcomes	• Differentiate sampling methods • Describe sampling distributions
Readings	• Chapter 7
Lectures	Lecture 1: Types of Sampling Methods Lecture 2: Sampling Distributions
Discussion	**Random sampling**
Assignments	**Complete the Chapter Post-Tests.** **Complete the MyStatLab Homework #5:** *Sampling Methods* **Research Proposal**

Week 6	Confidence Interval Estimations
Outcomes	• Compute confidence intervals • Determine sample size
Readings	• Chapter 8
Lectures	Lecture 1: Computing Confidence Intervals Lecture 2: Determining sample size
Discussion	**Confidence interval estimations**
Assignments	**Complete the Chapter Post-Tests.** **Complete the MyStatLab Homework #6:** *Confidence Intervals and Sample Size* **Research Proposal**

Week 7	Hypothesis Testing
Outcomes	• Explain kinds of questions which can and cannot be answered through hypothesis testing methodologies in a real-world context • Compute critical and p-values for the T and Z distributions • Interpret critical and p-values for the T and Z distributions • Analyze potential business decisions using hypothesis testing methodologies
Readings	• Chapter 9

	Six mini articles
Lectures	Lecture 1: Introduction to Hypothesis Testing Lecture 2: Z Tests and t Tests
Discussion	**Hypothesis testing**
Assignments	**Complete the Chapter Post-Tests.** **Complete the MyStatLab Homework #7** **Research Proposal**

Week 8	Simple Linear Regression
Outcomes	• Explain the importance of assumptions in conducting regression analyses Describe regression models • Compute regression slopes and coefficients • Interpret the meaning of regression slopes and coefficients • Analyze potential business decisions using simple linear regression
Readings	• Chapter 12
Lectures	Lecture 1: Regression Models Lecture 2: Using the Simple Linear Regression Equation
Discussion	**Regression**
Assignments	**Complete the Chapter Post-Tests.** **Complete the MyStatLab Homework #8:** *Developing a Simple Regression Model* **Research Proposal**

Grading and Evaluation

Your grades will reflect the way in which you present and support your topics and positions in the various learning activities used in this course. The grades will be based on the quality and quantity of your comments and responses in the various activities.

Be sure to review the discussion and assignment rubrics in the course for specific grading criteria.

The various graded activities are weighted as follows:

Course Element	% of Final Grade
MyStatLab Assignments	40%
Research Proposal	30%
Discussions	30%
Total	**100%**

Students will be expected to meet all the deadlines of the class as indicated throughout the course and in the syllabus. This is primarily so we don't get behind in the course. In addition, discussions cannot overlap from one week to the next. This is to ensure that all discussions and submissions take place within the week they are scheduled in order to be of value to the entire class as well as to help you not get behind. If there are extenuating circumstances, you will need to communicate that to the instructor and make arrangements accordingly, if appropriate.

Late Assignments: Exceptions are to be determined by the instructor on a case-by-case basis. There will be no opportunities for extra credit.

Learner Success Guidelines

These guidelines are provided to help you succeed in your coursework:
- Participate in the class introduction activity on the first day of class.
- Submit ALL assignments by the posted due dates and times.
- Check your emails daily.
- Contact Portal Help for logon problems or Canvas Help for technical issues with Canvas.
- Participate fully in all threaded discussions.
- Contact your instructor if you have questions about an assignment or need additional help completing your work successfully.

Academic dishonesty is grounds for dismissal from the program.

Academic Policies

The following Academic Polices can be found in the [Student Resource Center](#).
- Grading Criteria
- Reasonable Accommodations Policy
- Student Attendance Policy

- Academic Honesty and Integrity Policy
- Student Engagement and the Granting of Academic Credit
- Copyright Policy

Caveat

The above schedule, content, and procedures in this course are subject to change. All policies are superseded by the latest College Catalog available on our website: https://www.cambridgecollege.edu/student-rights-complaints-grievances/student-code-conduct