STAT 107R Business Statistics

Sections 5A1 and 5B1: Monday and Wednesday, 8:30 AM – 10:20 AM, in Hemenway Hall 405
(5A1 | CRN 90721) Friday, 8:30 AM – 9:20 AM, in Hemenway Hall 407
(5B1 | CRN 90722) Friday, 9:30 AM – 10:20 AM, in Hemenway Hall 407

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Wednesday, 10:30 AM – 11:30 AM
Thursday, 10:30 AM – 12;30 PM
Friday, 10:30 AM – 11:30 AM

Data are collected by businesses, both for-profit and non-profit[i], and government[ii] agencies. Analysis of data can be used to increase efficiency, guide changes and inform decision-making, and make predictions[iii]. Data can be used to help companies understand the needs of their customers, to revise business and marketing strategies[iv], and improve cash flow[v]. Data collection enables companies such as Google[vi] and Facebook[vii] to target advertisements to users. The Walmart[viii] website highlights the company's use of data to make their pharmacies more efficient, improve the "checkout experience" for customers, manage their supply chain, optimize product assortment, and personalize the shopping experience. Amazon[ix] is known for using data to track its inventory as well as that of third-party sellers, optimize pricing and shipping, predict add-on items that customers may purchase, and personalize product recommendations to increase the likelihood that a customer will buy a product or "engage with content". How is such data obtained and analyzed? How is data summarized and represented? How do we interpret data and how reliable is the information gleaned from data? Throughout the course we will endeavor to consider these questions and the uses of data we explore *Statistics* – the collection, classification, organization, analysis, and interpretation of data and the mathematical study of the likelihood that events occur based on known information and inferred by samples.

Course Description and Learning Objectives

An introduction to the discipline of statistics, emphasizing its applications in a business context. Topics include descriptive and inferential statistics, relevant probability distributions such as normal and binomial, regression, confidence intervals, and hypothesis testing. Appropriate statistical software such as Microsoft Excel or R is explored for both computation and presentation. This course includes an additional one-hour per week lecture recitation. Topics may vary by section at the discretion of the instructor with the goal of supporting students' readiness for, and success, in the lecture course. Note: Students may not receive credit for both this course and STAA 127 Statistics for the Social Sciences, STAT 117 Introduction to Statistics, STAT 157 Probability and Statistics, or STAT 203 Statistics for the Natural Sciences.

General Education Domain II-A
Analysis, Modeling, and Problem Solving: The study of analytical, quantitative, and/or formal reasoning methods involving the manipulation of numbers or other symbols to solve problems.

Learning Objectives:
3 – Solve Problems Using Quantitative Thinking
8 – Solve Problems Using Creative Thinking

Overall, you should gain the understanding that Statistics is more than numbers, tables, and graphs: Statistics involves analysis, explanation, and interpretation of a variety of types of information, and the tools of Statistics enable you to make sense of a variety of information and share this information with others in a meaningful way.

Attendance

Attendance during every course meeting is *expected* and will be *noted*. Lateness of more than ten (10) minutes counts toward an absence as does leaving early, *without an appropriate reason* discussed with the instructor *in advance*.

- If you miss a course meeting, it is *your* responsibility **(i)** to access the *class notes* and *summary* posted on the *Notes* page on *Canvas* and **(ii)** to obtain information about assignments

from your email, the course website, and *Canvas*. Absence does *not* entitle you to an extension for submitting assignments or for taking examinations. *It is your responsibility to read and work through any course work that you miss due to your absence as well as submit your assignments on time.*

- You may miss **no more than five (5) course hours** during the semester *without penalty* to the participation component of your course grade. If you miss more than five (5) course hours, your participation for those course meetings will be recorded as a zero (0). Since it is your choice how you use these five (5) allowed course-hour absences, *no excuses or doctor's notes will be accepted*.

CAUTION: Not being present during course meetings jeopardizes your grade as you miss course material and topic discussions, group problem solving and analysis of examples, and information about assignments and examinations.

Mask Policy

As recommended by the Department of Public Health on Mass.gov, you should "stay home when you have symptoms of any respiratory illness, like flu, COVID-19, and RSV" as "staying home when sick helps prevent the spread of germs". In addition, "wearing a mask provides protection against COVID and other viruses, especially when indoors or in crowded spaces" ... "if you have a weakened immune system, ... are at increased risk for severe disease ... , or ... someone in your household ... is at increased risk for severe disease". Although the use of masks is voluntary in all settings, I request that you wear a mask during any face-to-face meetings with me. I will wear a mask during my face-to-face meetings with you.

NOTE: The mask policy will be updated as needed.

Course Etiquette

You are expected to pay attention, be respectful, and participate during course meetings. Do not talk over or interrupt others: wait your turn to contribute to discussions and analysis. Use respectful language at all times: use of profanity is unacceptable as is the use of disrespectful and threatening language. Neither disruptive behavior nor disrespectful conduct will not be tolerated.

- All electronic devices not used for course work MUST be turned off and put away.

- You are expected to be *present* and *actively engaged* during course meetings. This includes contributing to course discussions and problem solving and asking questions.

You cannot make meaningful contributions during course meetings when you are, for example, texting, monitoring social media, watching videos, playing games, surfing the web, or doing assignments for other courses: such activities should be done on *your time*, not during *course time*. Those performing such activities during course meetings will be considered to be absent from class and will be directed to leave the classroom.

- Do not interrupt course meetings by announcing *your late arrival* or *your early departure* – everyone can see *you*.

- Do not disrupt course meetings with noise. Eating and crinkling wrappers, taking phone calls (which is totally inappropriate and unacceptable during course meetings), tapping, singing, humming, playing music (even with headphones, which is unacceptable as well), watching videos, having conversions, and other activities should be performed on *your time*, not during course meetings. Those performing such activities during course meetings will be considered to be absent from class and will be directed to leave the classroom.

You are expected to conduct yourself in a mature, respectful, and professional manner at all times. As stated in the Classroom Conduct Policy.

> *Framingham State University supports the principles of freedom of expression for both faculty and students. In order to maintain these principles, all students and course instructors are entitled to a safe, positive, and constructive teaching and learning environment. Disruptive or dangerous behaviors in classrooms and other academic settings can disturb teaching and learning, and these behaviors will not be tolerated. Any individual who engages in disruptive or dangerous behaviors in classrooms may be subject to disciplinary action in accordance with the Classroom Conduct Policy found in the University undergraduate catalog.*

Class Preparation and Participation

Being prepared for class includes, but is not limited to, doing assigned readings *before* each course meeting, working on practice exercises (in the eBook, provided on course handouts, sent via email and/or posted online), reviewing class notes and summaries of course meetings posted on the *Notes* page on *Canvas* prior to each class, maintaining and updating your course notebook (which should include class notes and the practice exercises on which you are working), and having appropriate materials such as your notebook, writing instruments, calculator and, when directed to do so, computer available for use during course meetings.

Participation can be contributions to course discussions, in-class problem solving, and analysis of real-world scenarios *as well as questions*. Questions are a very important component of the learning process: *your questions are significant contributions to each course meeting*. **There is no such thing as a stupid question**.

Assignments

Via *written* assignments and *MyStatLab* assignments, you will practice and apply the concepts, topics, and methods discussed and examined throughout the course. It is *your* responsibility to complete and submit assignments on time.

- **Written assignments**, including all supporting work, must be neatly *handwritten* and submitted at the beginning of the course meeting on the specified due date. If you cannot submit an assignment yourself then you must arrange for someone to deliver the assignment for you. Written assignments will not be accepted for grading after papers have been collected at the beginning of the course meeting on the stated due date; assignments sent via email (unless permission is obtained *in advance*), slipped under my office door, or submitted after the due date will *not* be evaluated. *You are welcome to turn in written assignments early.*

- **MyStatLab (a.k.a., MyLab Statistics) assignments** are completed *entirely* online; no written work is submitted.

Unless stated otherwise, assignments are NOT group work: you are expected to submit your own analysis and your own work, rather than working together. Those submitting analysis and/or work procured through group efforts, whether in whole or in part, will earn zero (0) points for the *entire* assignment. **Copying the work of others is unacceptable: you are expected to do your own work.**

Make-up and Late Submission Policy

Neither make-up examinations *nor* make-up assignments will be administered. Examinations will be administered only on the stated date, and written assignments will *not* be accepted *after* the due date. The grade for an examination or an assignment which is not submitted will be recorded as zero (0).

NOTE: The last day to withdraw from a course *without* a W-grade is Wednesday, September 11, 2024, and the last day to withdraw from a course *with* a W-grade is Wednesday, November 27, 2024. The last day to change course grade status to Credit/No Credit is Wednesday, November 27, 2024.

Examination Dates

There will be two (2) examinations, a midterm examination and a *comprehensive/cumulative* final examination. The dates for these *mandatory* examinations are listed below.

Midterm Examination	**Wednesday, October 23, 2024**
Final Exam	**Tuesday, December 17, 2024,**
	11:30 AM – 2:30 PM, in Hemenway Hall 405

Although the date for the midterm examination may be changed, if necessary, the date for the final examination, set by the University, *CANNOT* be changed.

Course Grade Percentages

Your course **grade** will be determined by your participation during course meetings, scores on the written assignments and MyStatLab assignments, score on the midterm examination, and score on the *cumulative* final examination.

The components of your course grade will be weighted as follows:

Course Participation	**10 %**
Assignments	**55 %**
Midterm Examination	**15 %**
Final Examination	**20 %**

The weights for the graded components of the course may be adjusted, if necessary, to reflect any changes in the workload during the semester.

Required Textbook, Software, and Supplies

Business Statistics, 3rd Edition, by Robert A. Donnelly, Jr. with special contributions by Serina Al Haddad and Stefan Ruediger, with MyStatLab

We will use the MyStatLab (also known as *MyLab Statistics*) system throughout the course for eBook access, practice exercises, online assignments, and a variety of resources.

The software for the course is MS Office, in particular MS Excel which must be installed on your computer for use during course meetings, and you need a scientific calculator which must, at least, have built-in combination, permutation, and factorial functions. You must install the Zoom app on your computer in order to meet with me remotely.

Academic Honesty

You are expected to read the sections of the Framingham State University [undergraduate catalog](#) that describe the *University Policy Regarding Academic Honesty* and the *Procedures for Handling Cases of Alleged Infractions of Academic Honesty*.

- *Examples* of infractions of the *University Policy Regarding Academic Honesty* include: giving or receiving help on assignments on which you are expected to do your own work (i.e. unauthorized collaboration); giving or receiving help during examinations; distribution, acceptance, or use of materials during examinations *without* the permission of the instructor; and altering work on graded materials in an attempt to obtain additional credit.

- Plagiarism, *looking at or copying from* another student's assignment or examination, allowing another student to *look at or copy from your* assignment or examination, doing an assignment or examination *for someone else*, and having someone do an assignment or examination for you are additional examples of breaches of the *University Policy Regarding Academic Honesty*.

- Not being truthful about your health, not being upright regarding the illness or death of a friend or family member, not being forthright regarding your availability to take an examination, not being honorable about the operation of your computer or your computer-access, and not being honest regarding the submission of an assignment or examination are examples of violations of the *University Policy Regarding Academic Honesty* as well.

- Submitting work for problems on other versions of an examination or assignment serves as *evidence* of violation of the *University Policy Regarding Academic Honesty* as does submitting work involving terminology, notation, and/or methods not used in this course or submitting work similar to that of another student.

All infractions of the *University Policy Regarding Academic Honesty* will be reported to the Dean of Students, the appropriate college dean(s), and the Office of Community Standards, and the appropriate University procedures will be followed.

Communication

Course emails will be sent to the *student.framingham.edu* email address listed for each student on *MyFramingham*.

- All email correspondence must be signed using your full name. The subject line for course communication is "**Stat 107R Business Stats:**" followed by a meaningful – *not blank* – reason for the communication (quotation marks are *not* used in subject lines for messages); do *NOT* put your name in the subject line.

- Replies will be sent to messages sent from *student.framingham.edu* email addresses or those generated via the *Canvas* message system only.

- Replies will *not* be sent to comments added to assignments on *Canvas*. Assignment facilities on *Canvas* are *not* a means for communication.

- When you communicate by **phone**, clearly identify yourself using your full name and state the course for which you are registered *at the beginning* of the conversation or voice message. If you leave a **voice message**, speak *slowly* and *clearly* so that your name, course information, contact information, and message can be understood.
  NOTE: Sending an email is a better means of communication than leaving a voice message.

If you are feeling lost or overwhelmed …

1. Meet with me
You are always welcome to meet with me during student hours: student hours are for you. You may speak with me after class, call me, or email me to set up an individual or group appointment. Your questions are important to me: questions are a valuable and important component in learning new concepts and exploring new methods.

To set up an appointment during which to meet via Zoom, send a request via email using your *student.framingham.edu* email address. Once the day and time have been determined, you will receive a Zoom meeting invitation containing the URL and meeting ID.

2. Use the resources available on *Canvas*, the course website, and MyStatLab
Class notes are posted on *Canvas* after each course meeting, and summaries of our in-class analysis are posted with the class notes. Course handouts and resources are available on the course website. Practice exercises with the view-a-similar-problem feature, additional examples, and videos are available via MyStatLab.

3. Meet with tutors available at CASA or via ThinkingStorm
The Center for Academic Success and Achievement (CASA) provides tutors from whom you may receive additional help. *ThinkingStorm Online Tutoring* may be accessed via the menu on *Canvas*. Additional information about tutoring can be accessed on the Extra Help page of the course website.

FSU Notice of Non-Discrimination and Diversity

Framingham State University is committed to a policy of non-discrimination, equal opportunity, diversity, and affirmative action. The University is dedicated to providing educational, working, and living environments that value the diverse backgrounds of all people.   Furthermore, the Massachusetts Civil Rights Act ("MCRA", M.G.L. c. 12, §§ 11H, 11I, 11J) protects the rights of all residents of and visitors to Massachusetts to be free from bias-motivated threats, intimidation, and coercion that interfere with their civil rights. The MCRA protects the right to attend school, live peacefully, and enjoy other basic rights.

FSU Commitment to Antiracism

At Framingham State University, faculty, staff, and students work together to sustain a learning, working, and living community free from hate, discrimination, harassment, and intolerance. We recognize the damaging effects of systemic racism – including policies, structures, and historic practices – on the experience and success of communities of color. Coming from different backgrounds and different levels of privilege, we can all affirm and engage in antiracist work.

Diversity of voices, and of minds, strengthens our ability to solve problems and to ask and answer questions about the world we share. As your instructor, I commit to upholding community values of inclusion, civility, accessibility, and mutual respect. I expect *all course members* to commit to creating a community that affirms and welcomes all persons from diverse backgrounds and experiences, and supports the realization of everyone's potential.

Disability/Access Services

"Framingham State University offers equal opportunities to all qualified students, including those with disabilities. The University is committed to making reasonable accommodations as necessary to ensure that its programs and activities do not discriminate, or have the effect of discriminating, on the basis of disability. Disability/Access Services works with students with ADD/ADHD, learning and psychiatric disabilities, students with mobility disabilities, students who are blind or low vision, students who are d/Deaf or hard of hearing, and students with chronic medical conditions."❖

"Disability/Access Services works to provide reasonable accommodations to qualified students. The purpose of accommodations, modifications, and/or auxiliary aids is to reduce or eliminate any disadvantages that may exist because of a disability. Framingham State University is not mandated by law to waive specific courses or academic requirements considered essential to a particular program or degree. Rather, the University is mandated to modify existing requirements on a case-by-case basis in order to ensure that individuals are not discriminated against on the basis of their disability."❖

- For further information, please visit the Center for Academic Success and Achievement (CASA) section of the Framingham State University web site or contact LaDonna Bridges, Associate Dean of Academic Success, at 508-626-4906 or lbridges@framingham.edu, or Tanya Milette, Access/Disability Services Coordinator, at 508-626-4627 or tmilette@framingham.edu.

Final Comments

You are welcome and encouraged to meet with me if you have any concerns about the course. It may happen that our analysis and discussions of topics and methods seem clear as we work together during course meetings but *appear* foreign when you try to work practice exercises *on your own*. Try discussing and working on practice exercises with others, and *please* know that *you are always welcome to work with me*. I would be glad to work with you: I am here to help you to learn and **I _want_ to help you**. When you learn new material, it is normal to have questions: *questions are a natural part of the learning process*. Asking questions helps you to identify concepts and methods that necessitate further exploration and helps you to incorporate new ideas, approaches, and strategies into your knowledge base. Always remember that **there is <u>no</u> such thing as a stupid question**.

[i] https://www.discoverdatascience.org/social-good/nonprofits/

[ii] https://www.businessofgovernment.org/blog/five-examples-how-federal-agencies-use-big-data

[iii] https://www.forbes.com/sites/stephanieburns/2020/12/02/3-ways-data-is-helping-to-improve-business-efficiencies/?sh=6379b7b44603

[iv] https://www.businessnewsdaily.com/10625-businesses-collecting-data.html

[v] https://www.investopedia.com/articles/personal-finance/061215/10-ways-improve-cash-flow.asp

[vi] https://www.oberlo.com/statistics/how-does-google-make-money

[vii] https://blog.hootsuite.com/facebook-statistics/

[viii] https://corporate.walmart.com/newsroom/innovation/20170807/5-ways-walmart-uses-big-data-to-help-customers

[ix] https://www.businesstechweekly.com/operational-efficiency/data-management/big-data-use-case/

❖ https://www.framingham.edu/academics/student-support-success/center-academic-success-and-achievement