

STAT 117 Introduction to Statistics

Sections 001/011: Tuesdays 8:30 AM – 10:20 AM via Zoom
Thursdays 8:30 AM – 10:20 AM via Zoom

Lab for Section 011: Fridays 12:30 PM – 2:20 PM

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Student Hours via Zoom:

Monday 4 PM – 5:30 PM

Tuesday 2:45 PM – 4:15 PM

Wednesday 4 PM – 5:30 PM

Thursday 4 PM – 5:30 PM

and by appointment



Statistics are everywhere – in newspapers and magazines, both online and in print, on the TV news, on web sites, and in advertisements, online, on the radio, and on television. For example, “4 out of 5 dentists surveyed who recommend gum would recommend Trident to their patients who chew gum” and “80% of Toyotas sold in the last 20 years are still on the road today” were regularly used in television advertisements. Same-sex marriage is frequently in the news: according to a Gallup poll, released June 1, 2022, “Seventy-one percent of Americans say they support legal same-sex marriage”, a one percentage point increase from a Gallop poll released June 8, 2021; for the latter poll, 83% of Democrats, 73% of Independents, and 55% of Republicans support same-sex marriage; and these percentages have increased over time according to Gallup polls released on May 19, 2015 [76% of Democrats, 64% of Independents, and 37% of Republicans] and May 8, 2012 [65% of Democrats, 57% of Independents, and 22% of Republicans]ⁱⁱⁱ. Some statistics may be *surprising* such as those reported by J. Clement on June 20, 2022 on Statista, which include that “Google Sites were ranked first among the most popular multiplatform web properties in the United States with over [260.2] million visitors from mobile and desktop connections” in comparison with Facebook’s 234.75 million unique visitors.^{iv}, or *interesting* such as Framingham State University’s having a lower Fall 2020 acceptance rate, 79%^v than Worcester State University, Bridgewater State University, Fitchburg State University, Salem State University, Massachusetts Maritime Academy, and Westfield State University, with acceptance rates of 81%^{vi}, 82%^{vii}, 88%^{viii}, 87%^{ix}, 92%^x, and 92%^{xi}, respectively. It is worth noting that the pre-pandemic (Fall 2019) acceptance rate for Framingham State University was 74% [five percentage points *lower*], the acceptance rate for Bridgewater State University and Westfield State University was 6% *higher* and 5% *lower*, respectively, the acceptance rate was 1% *lower* for both Salem State University and Massachusetts Maritime Academy, and the acceptance rate *remained the same* for both Worcester State University and Fitchburg State University. Based on these examples, we note that attitudes, information, and the corresponding data change over time. Should we believe all the statistics that we hear and read? How are these figures obtained? How are surveys conducted and how reliable are the results? Throughout the course we will endeavor to answer these questions and many others as 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 both statistical thinking and its application to analyzing data. Topics include sampling, design of experiments, organizing and exploring data, probability distributions such as the normal distribution, sampling distributions, hypothesis testing and confidence intervals, correlation and regression. Students are expected to express results of statistical procedures in ordinary non-technical language. Real world applications of statistical topics are emphasized throughout the course.

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.

What is in this syllabus?

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Attendance

Attendance at every class is *expected* and will be collected via Zoom: Zoom notes your *arrival* and *departure* as well as the *duration* of your attendance during meetings. Lateness of more than ten (10) minutes counts as an absence as does leaving early, *without an appropriate reason*.

- If you miss a course meeting, it is *your* responsibility to access the class notes on Canvas and to obtain information about assignments from your email, the course website, and Canvas. Absence from class does *not* entitle you to an extension for submitting assignments or for taking examinations.

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. 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. Use headphones or a headset rather than the speakers on your computer; use of headphones or a headset with a built-in microphone is recommended. Turn off your microphone when you are not actively contributing to during class.

You cannot make meaningful contributions during class 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 *class time*.

- Do not interrupt class meetings *when you arrive late* or *when you depart early*: Zoom *announces* your late arrival or early departure to the host (i.e. the *instructor*).
- Do not disrupt class meetings with noise when your microphone is active. Eating, taking phone calls, tapping, singing, humming, playing music, watching television, having conversations, and other activities should be performed on *your time*, not during *class time*.
- Display your *full name* during Zoom meetings.

You are expected to conduct yourself in a mature, professional manner.

Class Preparation and Participation

Being prepared for class includes but is not limited to doing assigned readings (in the textbook and/or online) *before* each course meeting, working on assigned exercises (in the textbook, provided on course handouts, sent via email and/or posted online), reviewing class notes *daily*, 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, and calculator available for use during course meetings.

Class participation can be contributions to course discussions and 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 apply the concepts, topics, and methods discussed and examined throughout the course. It is *your* responsibility to complete assignments on-time.

- **Written assignments** must be neatly written and submitted within one (1) PDF file. Written assignments may be scanned to PDF format or pictures (taken using appropriate lighting and *cropped to remove the surrounding area*) of pages may be saved to PDF format *within* one (1) file. Your full name must be written at the top left-hand corner on the *first page*, and your file must be named using the format *LastName_FirstName* for which *LastName* is your last name and *FirstName* is your first name; these are separated by an *underscore*, not a *hyphen*. Files containing written assignments must be uploaded via the specified submission facility on *Canvas*; the assignment details are included with the submission facility. Written assignments will *not* be accepted via email.
- **MyStatLab (a.k.a. MyLab Statistics) assignments** are completed *entirely* online; no written work is submitted. You must purchase [MyStatLab](#) access. MyStatLab assignments cannot be accessible after the due date.

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. *Neither examinations nor written assignments will be accepted after the submission deadline. MyStatLab assignments close on 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 Monday, September 12, 2022, and the last day to withdraw from a course *with* a W-grade is Monday, November 28, 2022. The last day to change a course grade-status to Pass/Fail is Monday, November 28, 2022.

Examination Dates

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

Exam I	. . . . .	Thursday, October 13, 2022
Exam II	. . . . .	Tuesday, November 22, 2022
Final Examination	. . . . .	Wednesday, December 14, 2022, 11:30 AM – 2:30 PM

Although the date for the two (2) examinations 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 work on the written assignments, MyStatLab assignments, examinations, and *cumulative* final examination.

CAUTION: Missing class meetings jeopardizes your grade as you miss course material and topic discussions, class and group problem solving, examples, and information about assignments and examinations.

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

Assignments	. . . . .	50%
Two (2) Examinations	. . . . .	15% each
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.

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/points.
- 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*, having someone do an assignment or examination for you, and not being truthful regarding the submission of an assignment or examination are additional examples of infractions of the *University Policy Regarding Academic Honesty*.
- Submitting work for problems on other versions of an examination 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 *primary* 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 117 Intro Stats:**" followed by a meaningful – *not blank* – reason for the communication (quotation marks are *not* used in subject lines for email); do *NOT* put your name in the subject line.

- 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.

Required Textbook, Software, and Supplies

Fundamentals of Statistics: Informed Decisions Using Data, 5th Edition, by Michael Sullivan III, with [MyLab Statistics](#)

We will use the [MyStatLab](#) (also known as *MyLab Statistics*) system throughout the course for textbook access, practice exercises, online assignments, and a variety of resources; MyStatLab provides access to the eBook. You must purchase MyStatLab access.

The two (2) purchase options for MyStatLab are provided below.

Option #1: If you prefer to use an *online* textbook then you should select the 18-week MyStatLab Standalone Access Card. [ISBN-13: 9780135910634]

Option #2: If you prefer to use a *printed* textbook with MyStatLab then you should select the *Books a la carte edition* of Sullivan's *Fundamentals of Statistics, 5th Edition* packaged with 18-week MyStatLab access. [ISBN-13: 9780135990414]

The software for the course is MS Office, 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.**

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."*

* <https://www.framingham.edu/academics/center-for-academic-success-and-achievement/disability-access-services/>

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 significant component in learning new ideas and exploring new approaches.

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.

“Disability/Access Services works to provide reasonable accommodations to qualified students. The purpose of accommodations, modification, 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 [Disability/Access Services](#) page on the Center for Academic Success and Achievement (CASA) section of the Framingham State University web site or contact LaDonna Bridges, Dean of Academic Success, at 508-626-4906 or lbridges@framingham.edu, or Tanya Milette, Associate Director of Disability Access Services, at 508-626-4627 or disabilityservices@framingham.edu.

Math Emporium Lab (for Section 011)

The Math Emporium Lab is an additional time each week during which to review related topics and to receive extra support and assistance with coursework. As stated in the [Math Placement](#) section on the [Placement Testing](#) page of the Framingham State University website, participation in the Math Emporium Lab “is a great support for students who find math to be challenging, feel underprepared for college math (especially after this last year of online learning), or haven’t been in a math class for a while”. Students have an opportunity to take a math placement test (beginning in the fall), and those who achieve a sufficiently high score may take a math course without the Emporium Lab.

Per page 53 (file page 56) of the [2022-2023 Framingham State University Undergraduate Catalog](#)[¶], “First-Year students will be exempt from Math Emporium Lab if they have met the following specific criteria based on their high school transcript: 2.7 or higher GPA, and have taken a math course during the senior year of high school. Students who are not exempt from the Math Emporium Lab are encouraged to take the Math Placement test in order to place out of the Math Emporium Lab requirement.” The [placement testing code explanation](#) provides information for whether or not the Math Emporium Lab is required for each mathematics placement code.

In addition to the weekly two-hour Lab meetings, students must complete computer-based modules as a means of co-requisite redress in mathematics; these modules are designed to cover prerequisite material related to course topics. Students are required to complete ten (10) modules[∇] (listed below) throughout the semester (approximately one module per week), and they must complete 90% of the questions correctly in each module; students may rework questions until the required 90% mastery level for each module is achieved. Completion of the modules is mandatory, and module scores count toward the *assignments* component of the course grade. Each module contributes the points *earned* to the *assignments* component of the course grade, and a student *earns* zero (0) points for any module not attempted.

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 seem 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 no such thing as a stupid question**.

ⁱ <http://www.tridentqum.com/textonly/news.php> and <https://www.nytimes.com/2009/07/28/business/media/28adco.html#:~:text=THE%20slogan%20for%20Trident%20in,saccharine%2Dsweetened%20gum%20in%201964.>

ⁱⁱ <http://www.toyota.com/corolla/awards.html> and <https://www.balisetoyotaofwarwick.com/compare-toyota-vs-other-brands-welcome-all-challengers/>

ⁱⁱⁱ <https://news.gallup.com/poll/393197/same-sex-marriage-support-inches-new-high.aspx>, <https://news.gallup.com/poll/350486/record-high-support-same-sex-marriage.aspx>

^{iv} <http://www.gallup.com/poll/183272/record-high-americans-support-sex-marriage.aspx> and <http://www.gallup.com/poll/154529/Half-Americans-Support-Legal-Gay-Marriage.aspx>

^v <https://www.statista.com/statistics/271412/most-visited-us-web-properties-based-on-number-of-visitors/> as of 08/29/2022

^{vi} <https://www.usnews.com/best-colleges/framingham-state-2185>

^{vii} <https://www.usnews.com/best-colleges/worcester-state-2190>

^{viii} <https://www.usnews.com/best-colleges/bridgewater-state-college-2183>

^{ix} <https://www.usnews.com/best-colleges/fitchburg-state-2184>

^x <https://www.usnews.com/best-colleges/salem-state-2188>

^{xi} <https://www.usnews.com/best-colleges/massachusetts-maritime-academy-2181>

^{xii} <https://www.usnews.com/best-colleges/westfield-state-college-2189>

[∇] The modules are completed via MyStatLab (i.e. Pearson’s MyLab Statistics).

[¶] Starting in 2017-2018, undergraduate catalogs (accessible on the [Catalogs](#) page of the University website) contain similar statements. The [First-Year Student Academic Advising and Registration Guide](#) includes information about the Math Emporium Lab.