**Vermont Tech**
**MAT-2021: Statistics**
**Fall 2022**

**Instructor:** Linda Segovia Wise
**Office:** https://vsc.zoom.us/j/95072075255 & Williston 225
**Email:** lwise@vtc.edu (preferred)
**Cell Phone:** 802.559.0661 (call or text)
**Office Hour:** Wednesdays 9:30am-10:30am or Click here to book an appointment with me
**Help Sessions:** Thursday & Friday 11am-noon via Zoom https://vsc.zoom.us/j/95072075255
**Class Zoom link:** Monday & Wednesday 10:50am-12:05pm https://vsc.zoom.us/j/81722213412

## Prerequisites

Placement level 3 or a grade of C- or better in either MAT-1040, MAT-1100, MAT-1210, or MAT-1221. The student should be fluent with arithmetic and have some basic algebra skills, but no previous experience with statistics is necessary for this course.

## Textbook

**Beginning Statistics 3e Software + EBook** 3rd Ed., by Hawke; ISBN: 9781642772791. You can also upgrade your purchase to include the textbook in print (ISBN: 978-1-64277-280-7). Purchasing the access code to the software is required as the work done there is part of your grade. Everyone will have a 20-day free trial access to the software and eBook. Once you have a permanent code, you will have lifetime access to the eBook and courseware. Access your textbook through the SSO in Canvas.

## Technology Requirements

### Calculator

- I recommend that everyone have a TI-83 or TI-84 calculator but you can certainly get by with a scientific calculator. You could also download a TI-84 emulator app like Calculate84 (iOS) or Wabbitemu (Android). Other options are to use Excel (which has statistical tools) or Desmos (which is an online scientific calculator).
- Prohibited: Using a TI-89, or any calculator with a Computer Algebra System (CAS) or using any app other than a TI-83/84 emulator on a test will be considered cheating.
- The Hartness library and the Center for Academic Success also have graphing calculators that you can borrow.

### Internet Connection

- All assignments and course materials will be provided and collected through Canvas but it is possible to view lecture videos and Canvas course material offline.
- If you are attending class via Zoom, you will need a stable connection. It may be helpful to dial into the Zoom meeting for a better audio connection - call 1-646-876-9923 & enter Meeting ID 817 2221 3412.

### Zoom

We will meet via Zoom for the synchronous portions of our class; we will also use Zoom for help sessions.

- Class link: https://vsc.zoom.us/j/81722213412 (No waiting room, recording automatically enabled)
- Help Session/ office link: https://vsc.zoom.us/j/95072075255 (Waiting room enabled, no auto recording). I will use this link to meet with you during Help Sessions, when I'm in my office (Williston 225) during office hours, and any time you make an appointment to meet with me.

## Course Flow

Our course is designed as Face to Face Plus (F2F+) class. This means that you will have the option to attend in-person or via Zoom. Watch the pre-recorded lecture videos (links posted to Canvas) at home and we will work on active learning activities in class. In the lecture videos we will work out the examples included in the Lecture Notes document that is posted to Canvas. Students may wish to print out pages from the lecture notes, or take notes on blank paper. Please watch these lecture videos BEFORE our class meets on Wednesdays and come prepared to work on topics. We will be using the iPad during class on Wednesdays for active learning activities. If you are not able to make it to class on Wednesday, you will still be responsible for completing the activities. It is important for you to be active in your learning. Each Saturday morning, the plan for the following week will be posted on our course webpage. I will not be giving a lecture during our class time, you are responsible for watching the lecture videos. Our Monday meeting time will optional. You can use the Monday class time to watch lecture videos, book an appointment to meet with me, or meet with your study buddy/tutor.

## Content for this Course

This course introduces the student to the basic concepts in probability and statistics which include sampling; measures of central tendency, dispersion, and position; linear regression; probability; distributions; and inferences– including estimation and hypothesis testing. We will study these topics by working with sets of data, studying the basic concepts of probability, and determining what conclusions are reasonable to draw about a population based on sample data.

## Learning Objectives

Upon successful completion of the course, a student will be able to

- Interpret and create graphs containing statistical information, as well as frequency distributions and stem-and-leaf displays
- Perform basic calculations including: mean, median, mode, range, standard deviation, variance, percentiles and quartiles, and create box-and-whisker plots
- Understand and use basic counting techniques to calculate theoretical probability
- Understand the difference between theoretical and empirical probability, and the Law of Large Numbers
- Understand and use the concepts of independence and mutual exclusivity of events
- Understand and apply the concepts of a discrete probability distribution, including the binomial probability distribution.
- Relate a normal probability distribution to the Standard Normal Distribution to calculate the probability of an event with a continuous random variable

- Calculate an estimation of the mean μ, if σ is known
- Perform a hypothesis test of the mean μ, if σ is known
- Calculate the linear correlation, and find the line of best fit for a set of bivariate data
- Use mathematical reasoning to analyze social justice problems in a variety of contexts and determine whether approaches are just and equitable

## Course Goals

Students will understand the importance of

- Working collaboratively with peers
- Actively engaging in learning activities
- Building an inclusive and safe learning community
- Using statistics in their everyday life

## Assignments

- General Assignments include discussion boards, in-class activities, and concept checks. Discussion Boards help learners develop and feel a sense of class community as they interact, collaborate, and share ideas about course topics. The concept checks provide an opportunity for learner self-reflection, to encourage deeper thinking and metacognition and lead to improved learning. In-class activities can be completed outside of class time if you are not able to make it to class. These activities will provide opportunities for learners to apply what they are learning and to demonstrate their thinking and understanding of course concepts/ materials/ topics.
- Homework will be assigned and graded through Hawkes. You will have multiple attempts at mastering these problems. Upon reaching mastery, Canvas will record a grade of 100% for that assignment. I will assign about 3 lessons per week.
- There will be a Project assigned for each unit (a total of three). The Projects will be assigned and graded through Canvas. Projects provide the learner with an opportunity to apply the statistics we are learning.
- There will be one test for each unit (a total of three tests). You can take the test in Hawkes anytime during the testing period. Tests will be timed and must be completed in one 3-hour time slot. Mathematics is so much more than a collection of answers. A student who works hard to produce a solution to a problem deserves to have his or her work evaluated for a grade, rather than receive a grade based only on a final answer. **I strongly encourage you to submit a picture of your work for the possibility of earning partial credit.** Seeing the body of work a student produces allows me to provide meaningful feedback on your understanding and communication of the material. I will show you how to do this using your iPad.

## Calculating Your Final Grade

Your final grade will be based on the following:

- Assignments: 15% of your grade
- Hawkes Homework: 20% of your grade
- Three Projects: 25% of your grade
- Three tests: 40% of your grade

A gradebook will be kept and updated regularly on Canvas. The final letter grade for the course will be assigned using the traditional scale.

A+ 97-100

A 93-96

A− 90-92

B+ 87-89

B 83-86

B− 80-82

C+ 77-79

C 73-76

C− 70-72

D+ 67-69

D 63-66

D− 60-62

F < 60

**Make-Up and Late Work Policy**

Deadlines for submitting each of the problem sets and taking each of the tests are clearly posted at the beginning of the semester. Please reach out to me ASAP if you are not going to be able to make a deadline BEFORE the deadline.

Homework assignments in Hawkes have the following late penalties:

1. 10% penalty for up to 1 day late
2. 20% penalty for up to 2 days late
3. 30% penalty for up to 3 days late
4. 40% penalty for more than 4 days late

**Dropping the Course**

Students may add or drop a course during the first week of classes. After the first week of classes up until we are 60% of the way through the semester, a student may drop the course with a "W". For the

Fall 2022 semester, the last day to drop a course with a "W" is **Friday, October 28**. After we are 60% of the way through the semester, no student may drop the course, and will receive an earned grade, regardless of circumstance. I encourage you to talk to me, your advisor and/or an academic counselor at the Center for Academic Success before dropping this course.

## Help For This Class

If at any time you need some help with the material in this class, please let me know. Here are a few ways that you can get some help for this course:

- I am available for one-on-one help via email, phone, or Zoom (online video conferencing)
- Students can request a tutor at the Center for Academic Success.
- If you are experiencing problems with the technical requirements of this course, please let me know, visit the Vermont Tech IT support page at support.vtc.edu, or visit Hawkes Support for 24/7 live chat.
- Anyone who emails me with a question can expect to receive a response within 48 hours (usually on the same day).

## Accommodations for Students

**Accessibility and Disability:** The College has a continuing commitment to providing reasonable accommodations for students with documented disabilities. Like so many things recently, the need for accommodations and the process for arranging them may be altered by the COVID-19 changes we are experiencing and the safety protocols currently in place. Students with disabilities who may need some accommodation in order to fully participate in this class are urged to contact the Disability Services Office, as soon as possible, to explore what arrangements need to be made to assure access. During this semester, the Disability Services Office can be reached by contacting Robin Goodall, Coordinator of Disability Services at 802-728-1278 or rgoodall@vtc.edu.

I also understand, however, that we all have different ways of learning, and that the organization of this course may work well for some but pose issues for others. Please communicate with me as soon as you can about your individual learning needs (registered or not) and how this course can best accommodate them. For example, do not hesitate to ask me to speak louder or make projections larger.

**Family Friendly Classroom:** To accommodate the fact that parents and those responsible for elder care face greater challenges in accessing higher education, this is an explicitly family friendly classroom. While I appreciate advance notice if you are planning to do so, you are always welcome to bring your infants, children, or elders requiring your care to class with you. For those of you who are not responsible for the care of others, I ask that you work with me to make this classroom an accepting and safe space for those with significant familial responsibilities.

**A Note about Self-Care:** I trust you. Acclimating to college is hard, and I know that you're doing the best you can. I never require documentation for absences or accommodations. If you tell me you're missing class because of a doctor's appointment, I believe you. If you're missing class because your body needs rest, I trust that you're making the decision that's best for you. I encourage you to reach out to me at

any point during the semester if you find yourself struggling to balance your academic obligations with your other needs.

## Policies

**Your Rights:** All students have a right to be treated in a manner free of bias of any kind. If you feel you are being discriminated against for any reason through violence or otherwise: microaggressions, intimidation, bias, racist/sexist/etc. Please feel free to contact me or any other staff or faculty member. The Vermont State Colleges System is committed to ensuring our campuses are safe places for students and employees. Faculty and staff are considered mandated reporters when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating/domestic violence, and stalking). Disclosures of interpersonal violence will be reported to the Title IX Coordinator, who can help provide support and academic accommodations for students who have been impacted. More information can be found online at https://resolve.vsc.edu/

**Tolerance and Respect:** Any speech or behavior that shows disrespect or intolerance towards others in class is unacceptable. As college students, you will be expected to participate in class discussions in ways that demonstrate maturity, civility, and openmindedness with respect to our diversity (including, but not limited to, differences in educational and economic backgrounds, age, race, sexuality, ability, politics, religion, etc.). This doesn't mean that you can't disagree with me or your classmates, but all disagreements must come with the spirit of tolerance and mutual respect that an equitable classroom requires.

**Diversity Statement**: VTC is committed to an inclusive environment free from discrimination and conducive of open inquiry, a multiplicity of ideas, and a healthy community. Not only is diversity respected in our classroom, but it is also supported.

**Academic Integrity:** Each student must read and agree to adhere to the standards outlined in the Academic Integrity statement. Any student who is found to have violated these standards will be subject to disciplinary action, up to receiving a failing grade for the course or dismissal from Vermont Tech. Please review Policy T107 for VTC manual on cheating and plagiarism: https://www.vtc.edu/sites/default/files/wysiwyg/PDFs/Student_Affairs/Policies_Procedures/T107%20REVISED%20SEPT%202018_fina1.pdf