



FORT VALLEY STATE UNIVERSITY
College of Arts and Sciences
Department of Mathematics and Computer Science
Course Syllabus

COURSE INFORMATION:

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Course: MATH 1401-01: Elementary Statistics (3 credit hours)

Course Schedule: 3:30 - 4:45 pm TR in 304 CTM

Course Delivery Method: Face-to-Face where all students are required to attend all classes. Homework and tests will be mostly via [MyOpenMath](#) and D2L

Semester Offered: FALL 2022

INSTRUCTOR INFORMATION:

Instructor: [Dawit Aberra, Ph.D.](#)

Office Location: 215 CTM

Office Phone: (478) 825-6725

E-mail: aberrad@FVSU.edu

Office Hours:

Tuesday: 9:00 am – 2:00 pm

Thursday: 9:00 am – 2:00 pm

During these hours, I may be reached at the phone or email listed above to schedule a ZOOM or COLLABORATE-ULTRA meeting.

ATTENDANCE VERIFICATION.

In order to confirm your attendance and participation in this course, you must complete the mandatory post at [Mandatory Introduction-Attendance Verification](#) by Monday, **Friday, August 19, 12:00 noon (EST)**. This activity is required. Failure to complete this may result in you being removed from the course for not attending.

COURSE DESCRIPTION. This course is a non-calculus based introduction to statistics. Course content includes descriptive statistics, probability, distributions, hypothesis testing, inferences, correlation, and regression.

COURSE MATERIALS/REQUIREMENTS.

Prerequisite: Any College Level MATH course (Example: any one of MATH 1101, MATH 1001, MATH 1111, MATH 1112 or MATH 1113).

Textbook: Introductory Statistics from OpenStax, Print ISBN: 1938168208, Digital ISBN:1947172050.

Link to eText: www.openstax.org/details/introductory-statistics

Good news: your textbook for this class is available for free online! If you prefer, you can also get a print version at a very low cost.

Technology: You will need to login to two portals: [MyOpenMath](#) to do homework assignments and test reviews/tests, and D2L for everything else. The Course ID to register for [MyOpenMath](#) is: **154556**. The service is provided free of charge. Leave "Enrollment Key" blank when registering.

Additional materials: In addition to all technology required for learning with online content and assignments (laptop, wifi), a graphing calculator is **required** (TI-84 Plus is the recommended). Also, EXCEL and/or R/RStudio may be helpful.

MAJOR AREA (MATHEMATICS PROGRAM) LEARNING OUTCOMES. This course addresses the following program learning outcomes.

- Collecting data and utilize statistical methods to test hypotheses and draw inferences.
- Using graphing calculators and computers to solve computationally intense mathematical problems.

COURSE SPECIFIC OBJECTIVES. By the end of the semester, the student will be able to:

1. Sampling and Data

- Recognize and differentiate between key terms in statistics
- Apply various types of sampling methods to data collection.
- Create and interpret frequency tables

2. Descriptive Statistics

- Display data graphically and interpret graphs: stemplots, histograms, and box plots
- Recognize, describe, and calculate the measures of location of data: quartiles and percentiles
- Recognize, describe, and calculate the measures of the center of data: mean, median, and mode
- Recognize, describe, and calculate the measures of the spread of data: variance, standard deviation, and range.

3. Probability

- Understand and use the terminology of probability
- Determine whether two events are mutually exclusive and whether two events are independent
- Calculate probabilities using the Addition Rules and Multiplication Rules
- Construct and interpret Contingency Tables
- Construct and interpret Tree Diagrams

4. Discrete Random Variables

- Recognize and understand discrete probability distribution functions, in general
- Calculate and interpret expected values
- Recognize the binomial probability distribution and apply it appropriately

5. Continuous Uniform Distributions

- Recognize and understand continuous probability density functions in general
- Recognize the uniform probability distribution and apply it appropriately

6. The Normal Distribution

- Recognize the normal probability distribution and apply it appropriately
- Recognize the standard normal probability distribution and apply it appropriately
- Compare normal probabilities by converting to the standard normal distribution

7. The Central Limit Theorem

- Recognize central limit theorem problems
- Classify continuous word problems by their distributions
- Apply and interpret the central limit theorem for means

8. Confidence Intervals

- Calculate and interpret confidence intervals for estimating a population mean and a population proportion
- Interpret the Student's t probability distribution as the sample size changes
- Discriminate between problems applying the normal and the Student's t distributions
- Calculate the sample size required to estimate a population proportion given a desired confidence level and margin of error

9. Hypothesis Testing with One Sample

- Differentiate between Type I and Type II Errors
- Describe hypothesis testing in general and in practice
- Conduct and interpret hypothesis tests for a single population mean, population standard deviation unknown
- Conduct and interpret hypothesis tests for a single population proportion

12. Linear Regression and Correlation

- Discuss basic ideas of linear regression and correlation
- Create and interpret a line of best fit
- Apply the line of best fit to predict values
- Calculate and interpret the correlation coefficient
- Calculate and interpret outliers
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Graded Course Activity	Weight	Coverage	Due Dates
Test 1	12.5%	Chapter 1 & 2	Sep 11
Test 2	12.5%	Chapter 3 & 4	Oct 7
Test 3	12.5%	Chapter 5, 6 & 7	Nov 6
Test 4	12.5%	Chapter 8 & 12	Dec 1
MyOpenMath Homeworks (about 22)	30%	See inside MyOpenMath.com	See inside MyOpenMath.com
Final Exam (Proctored)	20%	Chapter 1-8, 12 (Comprehensive)	December 7 - 9 TBA

GRADE TURNAROUND: All assessments (homeworks and tests) will be graded within one week time. Instructor will provide all necessary feedback.

LATE ASSIGNMENTS: a grade of zero will be awarded for all late homeworks, tests and discussions.

GRADING POLICY.

Tests (50%): There will be four 100-point tests. The total score for tests will be 400 points. No make-up will be given. To do the Tests, you need to complete the **Content** here in D2L and in class, and click to go to [MyOpenMath](#) . If you did not register yet, the Course ID to register for MyOpenMath was given above.

Homework (30%): Homework problems selected from each section of the book are assigned and graded via MyOpenMath. You must complete and submit all homework assignments by the due dates shown in the system. Homework assignments reflect the minimum work expected.

Proctored Final Exam (20%): A comprehensive proctored final exam covering all units and worth 100 points will be administered at the end of the semester (July 21, time: TBA). More info about this exam will be provided in due time.

Grading Distribution:

Your **Midterm Average (MAV)** will be calculated based on the weighted average (out of 85) of your **Test Average(50%)** and **Homework Average(30%)**,

Your **Final Average (FAV)** will be calculated based on your **Test Average(50%)**, **Homework Average(30%)** and the **Final Exam (20%)**.

Grading Scale:

Based on your **MAV**, your **Midterm Grade** will be calculated using the following scale:

A: 90 – 100; B: 80 - 89; C: 70 - 79; D: 60 - 69; F: below 60.

Based on your **FAV**, your **Final Grade** will be calculated using the following scale:

A: 90 – 100; B: 80 - 89; C: 70-79; D: 60-69; F: below 60

REQUIRED TEXT BOOK AND CALCULATOR.

Every student must access or possess course required textbook and graphing calculator (TI 84+ is the recommended calculator). Exams and Quizzes require calculator.

INTERNET RESOURCES. Each student is encouraged to consult internet resources, resources available in youtube or google. Here are some good sites that I recommend (and I used their resources to complement this online course)

- [Khan Academy](#)
- [Triola Videos for TI 83/84 users](#)
- [Online Statistics Education: An Interactive Multimedia Course of Study](#)