MTH 155, Statistical Reasoning
Elite Learning—Fall 2018

Supporting Colleges: MECC WCC VHCC

Southwest Virginia Education and Training Network

Contact Information

Instructor: Sherri Gardner

E-mail: The best way to reach us is by sending a message within your Moodle course; however, my email address is Sherri.Gardner@scottschools.com. Email should only be used as a last resort. Students should expect to receive message responses within 48 hours. Messages will post under your course announcements, so be sure to read the announcements!

Asynchronous Online Course via Moodle: http://elite.mrooms3.net

Course Description

VCCS Master Course Description: This course presents elementary methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software.

Students who successfully complete this course will earn 1 high school credit and 3 hours of college credits for Statistical Reasoning (MTH 155).

Prerequisites

Students must have successfully completed Algebra I, Algebra II, and Geometry before taking this course. They must also receive a passing Math Placement Test Score at your community college.

Course Materials

All online resources are used for this course. No textbook is required. All course materials were selected to meet the course goals and objectives. Students should contact their facilitator or guidance counselor if there are problems accessing the sites at your school. If you are unable to receive materials within the first few days of class, contact the instructor.

Time & Location of Class Meeting

This course is asynchronous, which means you will be able to access your course material at any time of the day or night. You should have a specific time in the day that you will be assigned to work on your assignments for this course. It is critical to log into your course on a daily basis. Any time the instructor notes you have not logged for 3 or more school days, your school will be notified.

Technology Requirement

Students will be required to complete and submit assignments by using Moodle, the learning management system for Elite Learning. The course can be accessed at www.svetn.org. Students will need use of the Internet for all coursework. Access to word processing and spreadsheet software is also required.

Access to a TI–83, 83+, 84, 84+ or any brand of calculator of similar ability is helpful but all of the required statistical calculations can be done within Excel as well.

Technical Support

Technical problems are not common but occur from time-to-time. To receive prompt support, students must submit a trouble ticket by going to www.svetn.org and then selecting the Contact tab. The trouble ticket form will be distributed to the informational support team. You should receive a response within 24 hours (usually much sooner). After you have submitted the trouble ticket, please send me an email or message to let me know what problems you are having.

Course Learning Outcomes/Objectives:

- **Communication & Learning Skills**

  To help students develop the ability to read, understand, interpret, and write about mathematics and statistics. → To give students who do not plan to major in a math or science field a good introductory survey of statistics.

  Interpersonal Skills & Human Relations. To develop responsibility for completion of work in a timely fashion as would be expected by employer.

- **Computational & Computer Skills**

  To develop skill in using a graphing calculator or computer as a problem solving tool.

- **Understanding Science & Technology**

  To provide an understanding of the development of math and its relation to the world by solving real world applications.

Content Topics

Speaking of Statistics – The student will learn:

- What is/are statistics
- Sampling
- Types of statistical studies, and
- Should you believe a statistical study?

Measurement in Statistics – The student will learn:

- Data types and levels of measurement,
- Dealing with errors,
- Uses of percentages in statistics, and
- Index numbers.

Visual Displays of Data – The student will learn:

- Frequencies tables,
- Picturing distributions of data,
- Graphics in the media, and

- A few cautions about graphics.

Describing Data – The student will learn:

- What is average?
- Shapes of distributions,
- Measures of variation, and
- Statistical paradoxes.

A Normal World – The student will learn:

- What is normal?
- Properties of the normal distribution, and
- The central limit theorem.

Probability in Statistics – The student will learn:

- The role of probability in statistics,
- Basics of probability,
- The law of large numbers,
- Ideas of risk and life expectancy, and
- Combining probabilities

Correlation and Causality – The student will learn:

- Seeking correlation,
- Interpreting correlations,
- Best-fit lines and predictions, and
- The search for causality.

Inferences from Samples to Populations – The student will learn:

- Sampling distributions
- Estimating population means, and
- Estimating population proportions.

Hypothesis Testing – The student will learn:

- Fundamentals of hypothesis testing,
- Hypothesis tests for population means, and
- Hypothesis tests for population proportions.

T-Tests, Two-way Tables, and ANOVA – The student will learn:

- *t*-distribution for inferences about a mean,
- Hypothesis testing with two-way tables, and
- Analysis of variance (one-way ANOVA).

Method of Evaluating Student Achievement

Grading Policy & Scale

This course will be graded on a ten-point scale:

100-90 %= A 89-80 % = B 79-70 % = C 69-60 % = D 59 % or less = F

All grades will be reported by SVETN to each school with a numeric grade and a recommended letter, but assignment of a final letter grade will be at the discretion of the student's school.

Tests will be given during the semester covering a single chapter or pair of chapters depending on the amount of material covered. The average of the scores will be the number grade for Test Average. The test average will count 35% of the final grade.

Projects will be administered throughout the semester to give the student practice applying the statistical concepts gained through each chapter. The projects will total to 25% of the student's final grade.

A final exam will be given at the end of the course; the exam will be comprehensive. The Final Exam will count 25% of the final average.

- Test Average 35%
- Project Average 25%
- Homework 15%
- Final Exam 25%

Teaching Methods:

Homework assignments will be given as suggested to help the student prepare for each of the tests. The suggested homework problems will be taken up for a grade and it is expected of the student to complete each set of homework problems assigned. Assignments will be randomly selected for either full grading, selected problems graded, or completion credit. You will not be told ahead of time how each assignment will be graded, so it is in your best interest to complete all the assignments as if they are going to be completely graded.

How to be Successful

- Make sure you read through this entire document. There is useful information here.
- Stay on task by printing off your assignment sheets and keeping them in a notebook with a calendar.
- Plan ahead, and do not procrastinate. The dual enrollment classes are college classes. An asynchronous class requires discipline. If you are not self-disciplined in your studies, then you need to rethink your decision to take this class.
- You must stay focused and keep a steady pace, or you will fall behind.
- Technical difficulties may occur. Remember that technical difficulties happen with online courses. Report technical problems as soon as possible by submitting a trouble ticket at www.svetn.org under the Contact tab.

Late Work Policy

Please be aware that this is a rigorous college course, which requires disciplined work habits and the meeting of deadlines. Due dates are located on the calendar and throughout the course. You should give yourself plenty of time on assignments and do not wait until the last minute. For example: A test has been open for an entire week. You do not attempt the test until 30 minutes before it closes but then you have technical problems. You will not be given an extension because ample time was given on the quiz. I will not extend deadlines unless I have been contacted by your school with an approved excuse. Plan accordingly if you will be out of school on trips.

Attendance Policy

At least once every school day, you are required to log on to MOODLE and perform three tasks:

1. Check your inbox for new messages.
2. Check for new course announcements under "Latest News."
3. Check the calendar under "Upcoming Events," to see what work is due.

You should then proceed to work on the assignments within the current unit.

Disabilities

Students who participate in this class are also high school students. Each high school has resources available for students with disabilities (IEP). Please contact the guidance counselor at your school to request academic accommodations. Each community college also has the Office of Student Services, which may be able to provide additional services. A representative from your school (guidance counselor) may make a request for services at the college. That office will evaluate the request and make recommendations for appropriate and reasonable accommodations, which the student will provide to the instructor. Please contact your guidance counselor or SVETN for more information.

Emergency Policy

Follow all emergency policies for your home school.

Academic Integrity

Each student will be bound by the academic codes of their school. Any violations will be reported to the student's school for appropriate disciplinary action. Cheating will not be tolerated. Because these courses are considered college courses, each student is considered a responsible adult. It is assumed that students will maintain standards of conduct appropriate to membership in Elite Learning as well as the community college. Emphasis is placed on standards of student conduct rather than on limits or restrictions. Guidelines and regulations governing student conduct are developed by the Elite Learning faculty, staff, and administration. More detailed information is found in the *Elite Learning Student* Guide.

It is critical that all students read the Elite Learning Guide for Students. This guide is located at www.svetn.org as well as within your course. Contact Dawn Stafford, SVETN Executive Director, if you have questions or concerns.

Course syllabus and schedule is subject to change at the discretion of the instructor.