

# Northeastern Technical College

## MAT 120

### Probability and Statistics

**Course :** MAT 120

**Title:** Probability and Statistics

**Instructor:**

**email:**

**Office:**

**Telephone Number:**

**Office Hours:**

**Prerequisites:** Acceptable placement score or completion of MAT 102 with a grade of "C" or better.

**Description:** This course includes the following topics: introductory probability and statistics, including organization of data, sample counting problems, binomial and normal distributions, Central Limit Theorem, confidence intervals, and test hypotheses, type i and ii errors, linear regression, and correlation.

**Textbook:** Elementary Statistics, 10<sup>th</sup> edition, Triola, 2007.

**College Wide Competencies:** Apply mathematical/computational skills to solve problems.

**Learning Outcomes:** The student will demonstrate an ability to solve problems with probability and descriptive statistics, binomial and normal distributions, Central Limit Theorem, confidence intervals, and test hypothesis, type I and ii errors, linear regression, and correlations.

**General Education Outcome:** Graduates will be able to :

1. use a systematic approach to solving problems.

**Attendance:** Students are expected to attend all scheduled classes and are responsible for all class work, homework, notes, etc., whether or not they are present. In the event of extenuating circumstances, such as illness, you are allowed to miss **up to 8** hours. The student will be dropped after missing more than 8 hours of scheduled classes. If an instructor drops a student for excessive absences at any time during the semester, a grade of AF@ will be assigned. If the student withdraws from the course, a grade of AW@ or AWF@ will be assigned as outlined in the college catalog. **THERE IS NO SUCH THING AS AN EXCUSED ABSENCE!! IF YOU EXCEED THE ALLOWED NUMBER OF ABSENCES, YOU WILL BE DROPPED.** A student is considered tardy if not present for roll call, which is taken at the beginning of the class. Three tardies constitute 1 hour of absence.

**Academic Dishonesty:** Students are expected to do their own work. Please refer to the NETC Student Code and Grievance Procedure for a definition of academic dishonesty and an outline of the disciplinary action that may result.

### **Student Disabilities:**

Students with disabilities are encouraged to contact the Vice-President for Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Vice-President for Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs.

### **Classroom Etiquette:**

1. Electronic communication devices (pagers, cell phones, etc.) are NOT allowed in the classroom. On-call emergency personnel should see the instructor for an exemption.
2. No visible food or drinks are allowed in the classrooms.
3. No radio or headphones are allowed in the classrooms

### **ID Policy:**

**It is mandatory that every student wears his/her ID at all times when on the Cheraw campus.**

During the first week of classes, the instructor will issue a reminder to wear the ID. This reminder is a warning.

After the first week of classes, instructors are required to dismiss students without an ID from class. The student may get his/her ID (or a new one in Student Services for \$3.00) and return to class before the midpoint of the class ( to be class. If the student cannot get an ID and return to class by the midpoint, the instructor will record the absence.

**Assessment Methods to Appraise Objectives:** Tests, projects, and rubrics will be used to compute your grade for MAT 120.

### **Make-Up Test Procedure:**

**No make-up** tests are given except in extenuating circumstances. The **student** is responsible for contacting the instructor **prior** to the time the test is scheduled to arrange a meeting to discuss the process of making up the missed test.

### **Grading Scale:**

The grade point scale that will be used is as follows:

A = 93 - 100

B = 85 - 92

C = 77 - 84

D = 69 - 76

F = below 69

## **Tentative Class Outline**

<b><u>Week</u></b>	<b><u>Sect.</u></b>	<b><u>Description</u></b>
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1	1.2	Types of Data	Test 1 _____
	1.3	Critical Thinking	
	1.4	Design of Experiments	
2	2.2	Frequency Distributions	Test 2 _____ <b>Project 1</b> _____
	2.3	Histograms	
	2.4	Statistical Graphics	
3	3.2	Measures of Center	Test 3 _____
	3.3	Measures of Variation	
	3.4	Measures of Relative Standing	
4 - 5	3.5	Exploratory Data Analysis	Test 4 _____
	4.2	Fundamentals	
	4.3	Addition Rule	
	4.4	Multiplication Rule: Basics	
	4.5	Multiplication Rule: Complements	
6 - 7	5.2	Random Variables	Test 5 _____ <b>Project 2</b> _____
	5.3	Binomial Probability Distribution	
	5.4	Mean, Variance, and Standard Deviation for the Binomial Distribution	
8 - 9	6.2	The Standard Normal Distribution	Test 6 _____
	6.3	Applications of Standard Normal Distributions	
	6.4	Sampling Distributions and Estimators	
	6.5	The Central Limit Theorem	
	6.6	Normal As Approximation to Binomial	
10 - 11	7.2	Estimating a Population Proportion	Test 7 _____ <b>Internet Project</b> _____
	7.3	Estimating a Population Mean: $\sigma$ Known	
	7.4	Estimating a Population Mean: $\sigma$ Not Known	
12 - 14	8.2	Basics of Hypothesis Testing	Test 8 _____
	8.3	Testing a Claim About a about a Proportions	
	8.4	Testing a Claim About a Mean: $\sigma$ Known	
	8.5	Testing a Claim About a Mean: $\sigma$ Not Known	
	8.6	Testing a Claim about a Variation	

15	10.2	Correlation
	10.3	Regression
	13.6	Rank Correlation

Test 9 \_\_\_\_\_