Statistics - Course Syllabus 2016-17

Instructor: **Marissa Martes** **Room 8**
E-mail: marissa.martes@district6.org
Phone: 541 494-6250 (CAHPS main phone line)

Textbook: ***Pearson Prentice Hall, Statistics: Informed Decisions Using Data by Michael Sullivan III, 2007*** supplemented by current articles, educational resources, and activities for teaching Statistics. Students will check out a book from the teacher in order to work on homework problems.

Parent/Student Resources:

http://synergy.district6.org/	To track grade & attendance and to see monthly calendar of assignments and due dates
www.khanacademy.org	For extra help with Statistics online

Course Overview:

This course introduces students to the major concepts and techniques of probability, descriptive statistics, and inferential statistics. With an emphasis on "doing" statistics, students will learn how to collect, analyze and draw conclusions from data. This course is not about memorizing formulas and learning how to calculate numbers but focuses on the development of each student's ability to interpret and draw conclusions based on appropriate statistical ideas and techniques, drawing on personal and in class experiences. The use of TI-83/84 graphing calculators will be mandatory, as well as the use of Excel software. Students who are successful in this course may be able to earn credit for SOU Mth243.

Grading

Percentage of Grade	**"Mastery of Learning Targets"** as demonstrated by:	**"Application of Learning"** as demonstrated by:
50% (Summative Assessments)	Unit Tests	Projects / Performance Tasks
25% (Formative Assessments)	Quizzes or check-ins	Targeted Assignments*: Graded assignments that help demonstrate student's current level of understanding/ progress towards mastery of learning targets
25% (Final)	Trimester Exam/Final	
0% (Skills Practice)	Skills Practice*– Daily Homework Assignments	

*NOTE:

- I will collect skills practice assignments the day after they are assigned. Think of this as the "feedback" deadline. Completing your skills practice assignments and formative assessments serves three purposes.
    - Allows you to reflect on what you learned in class in order to help brainstorm important questions for the next day.
    - Helps **YOU** assess your own learning in order to prepare for tests.
    - Helps **ME** determine what you know in order to help you be successful.
- When formative assessments and skills practice assignments are graded, grades will be based on accuracy and/or completion. Many of them can be corrected and resubmitted for a higher score.
- All formative assessments and skills practice assignments need to be turned in before the 2nd summative assessment specific to that topic/content to receive credit.
    - However, at least 80% of the points for those categories must be completed in order to replace the 1st Summative Assessment (Unit Test) score with the 2nd Summative Assessment (Unit Test) for that section.
- Targeted assignments assigned and completed in class will always be given a grade. Please use your time wisely.

A = 90% and above B = 80%- 89% C= 70%-79% D= 60%-69% F= 59% and below

Test Policy:

- The opportunity for test corrections and/or test retakes will NOT be given in Statistics, because SOU requires that this course follow their grading system, which is not proficiency based.
- Each learning target/topic will be assessed twice in the Summative Assessment category.
- If a student has at least 80% of the assignment points turned in for that topic, and they have completed a Math Autopsy for the previous assessment before the next summative assessment then their test score on the 2nd summative assessment may replace their score on the 1st summative assessment for that topic.
    - For example, in Trimester 1, we will have a Chapter 1 Test, Chapter 1/2 Test, and Chapter 2/3 Test. If a student has 80% of their "formative assessment" points for assignments relating to Chapter 1 topics, and has completed a Chapter 1 Test Math Autopsy, then he/she can replace their Chapter 1 Test score with their Chapter 1/2 Test score.
- Students must come prepared on test day to take their test. Absences on a test day must be communicated to Ms. Martes in advance and an alternate test date for that student must be scheduled to work with both Ms. Martes's and the student's schedule.
- All tests must be completed on test day. I allow students unlimited time on every assessment if they are willing to work through their lunch or come in after school.
- The summative assessments/unit tests occur about every 2-3 weeks.
- You will know all test dates in advance. There are many opportunities BEFORE each unit test for extra help and tutoring.
- Limited notes may be allowed on some tests. However, you will be required show all your work, even when using calculator 'short cuts'.

Required Materials:

- **Statistics BINDER:** In order for students to be successful in personal management, organization is key. I ***strongly recommend*** students keep a ***separate binder*** for Statistics handouts, as there will be many. Suggested tabs would be

    1) Lecture Handouts /Notes

2) Assignments (suggested practice, targeted assignments, study guides, etc.)
3) Labs / Activities

- TI-83 or TI-84 calculator*
- Loose leaf college-ruled paper
- graph paper
- pencils and eraser
- colored pen for correcting, highlighting and/or note-taking

*Students who plan on enrolling in higher-level mathematics later in high school or in college will also need a TI-83 or TI-84 graphing calculator. It is a requirement for Pre-Calculus, Calculus, as well as many other college-level courses. Please talk to me if you are unable to attain a calculator. Students may be able to check-out a calculator for the remainder of the year. Used calculators in good shape can be found on Amazon.com or posted by many SOU students on Craigslist for a considerably cheaper price than buying them new.

STUDENT'S RESPONSIBILITIES

Mastering the learning targets in Statistics requires students to **actively think** about what they know and to relate that to new ideas to be learned. To be successful, students must:

1. Be **actively involved** in class**, ask questions, and contribute** to discussions.
2. **Complete or attempt all assignments.** All assignments are designed to help you learn. It is recommended that you work on statistics for 30 – 60 minutes each night.
3. **Ask for help and ask questions** of fellow students (when appropriate) and the teacher (when appropriate) when you are confused or don't understand.
4. **Do your homework on time** so that you are not slowing the class down by not being prepared.
5. **Prepare in advance** for tests and quizzes and group learning activities. Review notes, re-read material and study guides completed in class, find someone that you can verbally explain concepts to ahead of the test (if you can explain it well to someone, you know it).
6. **Come ready to learn and not be distracting** self and/or others students from the opportunity to learn.
7. **Follow the guidelines** set by the school and the district student behavior code. Come to class **on time and prepared** with materials
8. **In group-work, use the 95 / 5 rule**… (95% math / 5% social, only after the math is done!)
9. Remember that **cell phones** and other electronic devices **should be OFF & out of sight** unless explicitly teacher approved for a given activity & then it must only be used in the manner approved. If such devices are out or disrupt class by ringing, a cell phone referral will be issued as per CAHPS discipline policy.
10. **Be safe** and follow all lab safety rules at all times
11. **Be respectful** to the teacher, fellow classmates, and any guests to our classroom (guest speakers, substitute teachers, student teachers, etc.)

Attendance (Follow school & District policies):
Attendance and participation are **vital to your success** in Statistics. We will be having important discussions about concepts in statistics. Labs and other learning activities are most valuable when done in class with the teacher and other students to enhance learning. Without good attendance and active learning, acquiring the knowledge and skills of Statistics is nearly impossible. If you do miss a day, **you must make arrangements with your teacher to come in to make-up the work within a timely manner**.

Course Learning Targets:

Topics		Mastery	Familiarity	Exposure	Optional
Introduction	Statistics and the Process of Statistics		x		
	Population and Sample	x			
	Descriptive Statistics and Inferential Statistics			x	
	Qualitative and Quantitative Variables		x		
	Discrete and Continuous Variable		x		
Organizing Qualitative Data	Frequency Distribution		x		
	Relative Frequency Distribution		x		
Organizing Quantitative Data	Summarizing Discrete Data in Tables		x		
	Histograms of Discrete Data		x		
	Summarizing Continuous Data in Tables		x		
	Histograms of Continuous Data		x		
	Stem-and-Leaf Plots				x
	Distribution Shapes		x		
Measures of Central Tendency	Mean, median, and mode (of a population and a sample)	x			
	Resistant measure to outliers: mean or median		x		
	The order relation between mean and median according to the shape of the distribution.		x		
Measures of Dispersion	Range, variance, and standard deviation (of a population and a sample)	x			
	The Empirical Rule[1]	x			
Measures of Relative Position	Standard Score/Z-score	x			
	Percentiles and percentile ranks			x	
	The five-number summary, IQR, and the Box plot	x			
	Lower Fence and Upper Fence	x			
Normal Distribution	Properties of normal distribution[1]		x		
	The Standard Normal Distribution		x		
	Calculation of normal probabilities using the TI-function *Normalcdf*	x			
	Finding percentile values and use of the TI-function *invNorm*	x			
The Sampling Distributions	Understanding the basic nature of the sampling distribution of the sample mean		x		
	Finding the percentile rank of a given sample mean		x		
	Finding the standard score of a given sample mean	x			
	Understanding the nature of the sampling distribution of the sample proportion, and			x	

	finding the percentile rank and the standard score[2]				
Confidence Interval Estimation about one population parameters: μ and *p*	A confidence interval estimate about μ when σ is known, and determining sample size	x			
	The properties of t-distributions, and how to find the percentiles of t-distributions		x		
	A confidence interval estimate about μ when σ is unknown	x			
	A confidence interval estimate about *p*, and determining sample size		x		
The Language of Hypothesis Testing	Null and Alternative Hypotheses	x			
	Type I Error and Type II Error		x		
	The Level of Significance α and its relation to Type I error	x			
	The probability of Type II error, β			x	
	The inverse relation between α and β		x		
	Writing the Conclusion	x			
Testing Hypothesis about μ when σ is known.	The Critical Value based Z-test		x		
	The p-value approach. Should be able to find the p-value using TI Z-test and be able to make a decision.		x		
Testing a Hypothesis about μ when σ is unknown.	The Critical Value based T-test		x		
	The p-value approach. Should be able to find the p-value using TI T-test and be able to make a decision.		x		
Testing a Hypothesis about *p*	The Critical Value based 1-PropZtest		x		
	The p-value approach. Should be able to find the p-value using TI 1-PropZtest and be able to make a decision.		x		
Testing Hypothesis about two population parameters:	Inference about two means – Two Dependent Samples T-test				x
	Inference about two means - Independent Samples: 2-SampTtest (Both the classical approach and the p-value approach). Students are expected to find the test statistic and the p-value using the calculator.		x		
	Inference about two proportions: 2-PropZtest (Both the classical approach and the p-value approach). Students are expected to find the test statistic and the p-value using the calculator			x	
Regression Analysis	Response Variable and Predictor Variable	x			
	Scatter Diagram	x			
	Linear Correlation Coefficient		x		

	The line of the best fit	x			
	Interpretation of the slope and the y-intercept in the context of the regression line	x			
	Coefficient of Determination		x		
	Lurking variables in relation to coefficient of determination			x	
Special Topic	Discrete Distributions/Binomial Probability				x
Technology Use	Software Use: Minitab/Excel[3]		x		
	Calculator Use: TI-83/84/89[4]		x		

PARENTS

If you need to contact your student for an emergency or other reason during the school day, PLEASE call the school phone number (541) 494-5260 and your student will be contacted. Please do **not** call or text your student's cell number during class because it causes disruption to your and other student's learning.

The simplest way to reach me is by email (marissa.martes@district6.org). Times that I am most available for parents are before school between 8:00 -8:50 am, and during my 4th period prep 1:20 – 2:30 pm (excluding Wednesdays). I generally respond to emails within 48 hours. For student help outside of class, my availability may vary. Please email me for current days and times.

If you have checked your student's grade on Synergy and are not satisfied with your student's progress, please first ask your student if they are completed their daily homework assignments. Generally, students who are not completing the work inside and outside of class, will not be successful on quizzes, tests, and other assessments.

…… ***Cut here!*** ……

Statistics SYLLABUS ACKNOWLEDGEMENT FORM

Note: Please read this syllabus carefully and sign it, have your parents/guardians read it and sign it, and return this portion to me by _____ Be sure to place the rest of this document into your binder for Statistics.

I have read and understand the course expectations and policies:

_____ _____

Print Student Name (Please print neatly) *Student Signature*

You, your daughter/son, and I are partners in your students' education. You can help him/her succeed by checking with them as often as possible about their progress and looking with them at their assignment completion and/or needs. Please also plan on attending parent/student teacher conferences. Contact me any time with questions or concerns.

_____ _____

Parent/Guardian Signature *Parent/Guardian Email* – **please print neatly**

Best Phone Number(s) to reach you First preference: _____

Second option (if available): _____

It is often easiest to call during the day. Is it okay to call you at work if there is something I would like or need to talk to you about your student? *Circle one* Yes No

If yes, work number: _____