South Plains College
Math 1342.003 MW Syllabus
Statistical Methods   Fall 2019

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Office Hours: 9:30am – 10:30am MW
10:30am – 12pm TR
8:00am – 11:00am Fridays
(or by appointment)

Textbook: This section does NOT require you to purchase a textbook. All resources are online through Knewton.com (the online homework system) or in your class notes found on Blackboard. A great resource is the OpenStax Introductory Statistics book found for free online and a link will be posted for it on Blackboard.

Course Description: This course is a study of the methods of analyzing data, statistical concepts and models, estimation, tests of significance, introduction to analysis of variance, linear regression, and correlation.

Course Purpose/Rational/Goal: To provide a transferable course in the elements of statistical methods.

Course Requirements: To maximize the potential to complete this course, a student should attend all class meetings, take notes and participate in class, and complete all homework assignments and examinations including the final exam in the allotted time. This section of 1342 requires each student to utilize Knewton for the online homework as well as coming to class each day with the notes provided by the instruction online at southplainscollege.blackboard.com.

Student Learning Outcomes/Competencies:
Upon successful completion of this course students should be able to competently perform the following:
1. Represent raw data using frequency distributions
2. Represent raw data using polygons, ogives, histograms, and pie charts
3. calculate measures of central tendency, variation, and position for both grouped and ungrouped data and interpret in writing the significance and meaning of the calculations
4. Calculate coefficients of variation and skewness and interpret in writing the significance of the calculations
5. Calculate classical and empirical probabilities
6. apply binomial, Poisson, and normal distribution properties to calculate probabilities and interpret in writing the significance of the calculations
7. Calculate mean, variance, and standard deviations of probability distributions and interpret in writing the significance of test results
8. Evaluate a hypothesis testing situation to determine the appropriate test to be used
9. Use parametric and non-parametric tests for hypothesis testing and interpret in writing the significance of test results
10. Calculate simple and multiple linear regression equations and use equations to make predictions
11. Calculate coefficients of correlation, determination, and non-determination and interpret in writing the significance of the calculations
12. Use a computer statistics program and/or a statistical calculator to help with computations

Grading:

			Grading Scale:	
Tests (3 total)	60%		A	90-100
Daily Work*	20%		B	80-89
Final Exam	20%		C	70-79
Bonus Tests	5%		D	60-69
			F	59 or below

*Daily Work includes all homework grades, classwork, and quizzes (if any).

Homework: Most homework assignments will be online through a system called Knewton. You can find directions for creating a student account and getting registered into the online homework system attached. Homework is to be completed by the due dates posted on each assignment. No late homework will be accepted. There might be times when homework is written. This work is to be completed in pencil on your own paper showing all steps, the assignment paper acting as a cover sheet.

Tests: There will be a total of 3 midterm exams in this course. No notes/homework/textbooks will be allowed on ANY exam unless otherwise instructed. All exams are expected to be completed in the allotted class time, no exceptions. No exam grades will be dropped. Exam corrections are for your own learning well-being and will not be graded but are expected to be completed after each exam is returned. Exam grades are not posted online anywhere. You will get all of your exams back. It is in your best interest to save ALL graded documents until your final grade is assigned at the end of the term.

Final Exam/Project: There is no final exam for this class! However, you are expected to complete a final project. If you do not do the final exam project, you will fail the class regardless of your average. More information will be given closer to the end of the term.

Bonus Tests: There are weekly bonus tests on Knewton. If you complete these tests, you can earn up to 5 percentage points added to your final grade. These tests are optional but they are timed and they do expire at the end of each week. The average of your bonus test scores will determine the number of points added to your final average (i.e. If you average 80% on the bonus tests, then you will be awarded 80(0.05) = 4 points to your final average.) Any bonus test you skip will be scored as a 0.

Late work: Late work is not accepted. If you do not turn in an assignment on time, you will receive a zero.

Class Notes: The class notes (outline) will be posted on Blackboard for you to print. It is the responsibility of the student to bring the notes to class everyday. Be sure to look at the tentative calendar to see what topics we will cover next. Completed (filled-in) notes will not be posted on Blackboard or anywhere else. You must come to class to fill-in the notes!

Calculators: There might be times throughout the year when students will need a graphing calculator to complete an assignment. This course is taught under the assumption that each student owns a graphing calculator. I recommend a TI 84 series calculator.

Attendance Policy: Attendance will be taken every class period. Students who arrive late, leave early, or sleep during class will be counted $\frac{1}{2}$ absent. **Any student who misses 4 consecutive classes or exceeds 5 total absences throughout the semester will be administratively dropped and receive a grade of X or F (at the instructor's discretion).**

Academic Integrity: Academic dishonesty will not be tolerated. You are expected to uphold the ideas of academic honesty. All work that is graded must be your own. This policy applies to all work attempted in this course. If this policy is violated the student will receive an F for the assignment. Furthermore, the instructor preserves the right to drop you from the course with an F. You will also never be allowed to take another course with this instructor in the future. For more details on what is considered cheating, see the South Plains College catalog. The instructor will make the decision to report you to the college and have the academic dishonesty put on your permanent record. If you are caught cheating on any assignment, you will not be allowed to take another class with this instructor in the future.

Class Rules:
- Be courteous and respectful at all times.
- Be on time and ready to learn.
- Keep your hands and feet to yourself.
- Use only pencil for all assignments.
- No food or drinks in class other than bottled water.
- Students are not permitted to use electronic devices, other than a calculator, in class. **Put the cell phones away!!**
- During testing, all cell phones should be placed on SILENT or turned off, and all smart watches need to be removed and placed inside a bag and out of sight. Any student who leaves the classroom for any reason (bathroom, phone call, etc.) during an exam will not be allowed to continue the exam upon their return. Once you leave the classroom during an exam, you are done.
- Adhere to the requirements of the Student Code of Conduct.

Core Objectives:
This course satisfies the following Core Objectives:
    Communication Skills:
        • Develop, interpret, and express ideas through written communication
        • Develop, interpret, and express ideas through oral communication
        • Develop, interpret, and express ideas through visual communication

    Critical Thinking:
        • Generate and communicate ideas by combining, changing, and reapplying existing information
        • Gather and assess information relevant to a question
        • Analyze, evaluate, and synthesize information

    Empirical and Quantitative Competency Skills:
        • Manipulate and analyze numerical data and arrive at an informed conclusion
        • Manipulate and analyze observable facts and arrive at an informed conclusion

Equal Opportunity: South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability, or age.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office at South Plains College early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. You must also talk directly to your instructor to inform her of your requests. This conversation must happen within the **first two weeks of classes**.

Campus Concealed Carry:
Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to the SPC policy at: http://www.southplainscollege.edu/human_resources/policy_procedure/hhc.php. Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

Disclaimer

The instructor reserves the right to alter any class policies as deemed necessary by the instructor or South Plains College, and will announce any changes in class. If a student has any questions about a change in policy ask the instructor for clarification.

Tentative Calendar for Math 1342				
Day	**Date**	**Topic**	**Notes**	**Bonus Test**
Monday	Aug 26	Syllabus Sampling and Parameters Statistical Study Design	1.1	1
Wednesday	Aug 28	Sampling Bias Variables and Measures of Data	1.2	
Monday	Sep 2	*Labor Day Holiday*		
Wednesday	Sep 4	Frequency Tables Histograms 1.4: Creating and Interpreting Stem-and-Leaf Plots and Dot Plots	1.3 – 1.4	2
Monday	Sep 9	Creating and Interpreting Stem-and-Leaf Plots and Dot Plots Line and Bar Graphs 1.5: Using Measures of Central Tendency, Quartiles and Box Plots, Skewness and Standard Deviation	1.4 – 1.5	3
Wednesday	Sep 11	Using Measures of Central Tendency Quartiles and Box Plots Skewness and Standard Deviation	1.5	
Monday	Sep 16	**Unit 1**	**Exam 1**	4
Wednesday	Sep 18	Sets and Basic Probability	2.1	
Monday	Sep 23	Conditional Probability Mutually Exclusive Independence Counting Principles	2.2	5
Wednesday	Sep 25	Modeling Data with Contingency Tables, Tree Diagrams, and Venn Diagrams	2.3	
Monday	Sep 30	Discrete Probability Binomial Distribution	2.4	6
Wednesday	Oct 2	Normal Distribution	2.5	
Monday	Oct 7	Central Limit Theorem (Means, Sums, and Proportions)	2.6	7
Wednesday	Oct 9	Review/Wrap-up		
Monday	**Oct 14**	**Unit 2**	**Exam 2**	**8**
Wednesday	Oct 16	Confidence Intervals (CI) for Population Means (SD known and Unknown)	3.1	
Monday	Oct 21	CI for Population Proportions and Two Samples	3.2	9

Wednesday	Oct 23	Conduct a Hypothesis Test for Mean (SD known) – CV approach and p-value approach	3.3	
Monday	Oct 28	Conduct a Hypothesis Test for Mean (SD unknown) – CV approach and p-value approach	3.4	10
Wednesday	Oct 30	Conducting Hypothesis Test for Proportions – CV approach and p-value approach	3.5	
Monday	Nov 4	Independent Samples (SD Known): Two-Mean Hypothesis Test (SD known) – CV approach and p-value approach	3.6	11
Wednesday	Nov 6	Independent Samples (SD Unknown): Two-Mean Hypothesis Test (SD unknown) – CV approach and p-value approach	3.7	
Monday	Nov 11	Dependent Samples: Two-Mean Hypothesis Tests – CV approach and p-value approach	3.8	12
Wednesday	Nov 13	Independent Samples: Two-Population Hypothesis Test for Proportions – CV approach and p-value approach	3.9	
Monday	**Nov 18**	**Exam 3**	**Unit 3**	13
Wednesday	Nov 20	Linear Regression Equations and Applications	4.1	
Monday	Nov 25	Correlation and Causation (LR) Coefficient of Determination	4.2	14
Wednesday	Nov 27	*Thanksgiving Holiday*		
Monday	Dec 2	Quiz over Linear Regression		None
Wednesday	Dec 4	Final Project Work Time		
	Dec 9	**Final Exam Project Due!!**	**Due by 12:30pm**	None

Important Dates:
    Fall Break (No classes or office hours) – Friday October 11th
    Last Day to Drop – Thursday November 14th