South Plains College
Common Course Syllabus: MATH 0342/1342
Fall 2021

Instructor: Taek Hyun Jang, PhD.

Office: 107 Math & Engineering Building (Levelland)

E-mail: tjang@southplainscollege.edu

Office: M107 (Math and Engineering Building, Levelland)

Office Hours:
Levelland Campus
- Monday and Wednesday: 1:30 PM – 3:00 PM
- Tuesday and Thursday: 1:45 PM – 3:00 PM
- Friday: 10:00 AM – 12:00 PM
- By prior appointment

Reese Campus
- Wednesday: 4:30 PM – 5:30 PM
- By prior appointment

Department: Mathematics, Engineering, and Computer Science

Discipline: Mathematics

Course Number: MATH 0342/1342-C002

Course Title: Statistical Methods

Available Formats: conventional, hybrid and internet

Campuses: Levelland, Reese, Plainview, Lubbock Center and Dual Credit
Class Schedule: Monday and Wednesday (11:00 AM – 12:15 PM)
                      Mathematics Building (RM: 122)

Course Description: Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing.

Prerequisite: Minimum score of 350 on the TSIA1, minimum score of 950 on the TSIA2, a diagnostic score of 6 on the TSIA2, TSI-exempt status, a successful completion with a grade of 'C' or better in MATH 0337, or successful completion of NCBM-0112.

Credit: 3 **Lecture:** 3 **Lab:** 0

Textbook: *Elementary Statistics: A Brief Version*, Bluman, 2014, 7th Edition, McGraw-Hill.

Supplies: Please see the instructor's course information sheet for specific supplies.

This course partially satisfies a Core Curriculum Requirement: Mathematics Foundational Component Area (020)

Core Curriculum Objectives addressed:
- **Communications skills**—to include effective written, oral and visual communication
- **Critical thinking skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Empirical and quantitative competency skills**—to manipulate and analyze numerical data or observable facts resulting in informed conclusions

Student Learning Outcomes: Upon completion of this course and receiving a passing grade, the student will be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

Student Learning Outcomes Assessment: A pre- and post-test questions will be used to determine the extent of improvement that the students have gained during the semester

Course Evaluation: There will be departmental final exam questions given by all instructors.

Assessment	Grading Scale	
In-class Assignment (Quiz & Lab): 10%	90 – 100	A
Homework: 10%	80 – 89	B
Exams (3): 20% each (total of 60%)	70 – 79	C
Final Exam: 20%	60 – 69	D
	Below 60	F

Tentative Exam and Final Schedule:

Attendance/Student Engagement Policy: Attendance and engagement are the most critical activities for success in this course. The instructor maintains records of the student's attendance and submission of assignments throughout the semester. The student is expected to attend at least eighty percent (80%) of the **total** class meetings **and** submit at least eighty percent (80%) of the **total** class assignments to have the best chance of success. If the student fails to meet these minimum requirements, the instructor <u>may</u> remove the student from the class with an X, upon their discretion, to help the student from harming their GPA. If the student can not receive an X, the instructor will assign an F.

Plagiarism violations include, but are not limited to, the following:
1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill;
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.

Cheating violations include, but are not limited to, the following:
1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain an unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another's work during an examination or on a homework assignment;
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's;
9. Taking pictures of a test, test answers, or someone else's paper.

COVID Syllabus Statement: It is the policy of South Plains College that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the SPC community. There will be no requirement for face coverings at any location on any South Plains College campus or classroom. Faculty, staff, or students may continue to wear a mask voluntarily, but there will be no requirements for face coverings in any circumstance. Students who believe they have been exposed or may be COVID-19 positive, must contact Health Services, DeEtte Edens, BSN, RN at (806) 716-2376 or dedens@southplainscollege.edu.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

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 Disability Services Office 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 Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health &

Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email rcanon@southplainscollege.edu for assistance.

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 and Frequently Asked Questions, please refer to the Campus Carry page at: http://www.southplainscollege.edu/campuscarry.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.

SPC Bookstore Price Match Guarantee Policy: If you find a lower price on a textbook, the South Plains College bookstore will match that price. The difference will be given to the student on a bookstore gift certificate! The gift certificate can be spent on anything in the store.

If students have already purchased textbooks and then find a better price later, the South Plains College bookstore will price match through the first week of the semester.   The student must have a copy of the receipt and the book has to be in stock at the competition at the time of the price match.

The South Plains College bookstore will happily price match BN.com & books on Amazon noted as *ships from and sold by Amazon.com*. Online marketplaces such as *Other Sellers* on Amazon, Amazon's Warehouse Deals, *fulfilled by* Amazon, BN.com Marketplace, and peer-to-peer pricing are not eligible. They will price match the exact textbook, in the same edition and format, including all accompanying materials, like workbooks and CDs.

A textbook is only eligible for price match if it is in stock on a competitor's website at time of the price match request. Additional membership discounts and offers cannot be applied to the student's refund.

Price matching is only available on in-store purchases.   Digital books, access codes sold via

publisher sites, rentals and special orders are not eligible. Only one price match per title per customer is allowed.

Note: The instructor reserves the right to modify the course syllabus and policies, as well as notify students of any changes, at any point during the semester.

MATH 0342/1342-C002: Statistical Methods Tentative Class Schedule

Week	Date	Topic	Chapter
1	Aug 30	Introduction, Misc. Chapter 1 – The Nature of Probability and Statistics (Definitions)	Ch 1
		2.1 Organizing Data – (Frequency Distributions/Tables)	Ch 2
2	Sep 06	No Class (Labor Day Holiday)	
	Sep 08	2.2 Histograms, Frequency Polygons, & Ogives 2.3 Other Types of Graphs – Bar Graphs, Pareto Charts, Time Series Graphs, Pie Graphs, Dotplot, and Stem & Leaf Plots	
3	Sep 13	3.1 Measures of Central Tendency	Ch 3
		3.2 Measures of Variation	
4	Sep 20	3.3 Measures of Position 3.4 Exploratory Data Analysis	
		2.4 Paired Data & Scatter Plots 10.2 Regression	Ch 10
5	**Sep 27**	**Exam 1 (Ch 1, 2, 3, & 10)**	
		4.1 Sample Spaces & Probability 4.2 Addition Rules for Probability	Ch 4
6	Oct 04	4.3 Multiplication Rules & Conditional Probability	
		4.4 Counting Rules 4.5 Probability & Counting Rules	
7	Oct 11	5.1 Probability Distributions 5.2 Mean, Variance, Standard Deviation, & Expectation	Ch 5
		5.2 Expectation (Expected Value) contd. 5.3 Binomial Distribution 5.4 Other Types of Distributions – Multinomial, Poisson, Hypergeometric, & Geometric (Optional)	
8	Oct 18	6.1 Normal Distributions 6.2 Applications of Normal Distributions	Ch 6
		6.3 Central Limit Theorem 6.4 Normal Approximation to the Binomial Distribution *	
9	Oct 25	**Exam 2 (Ch 4, 5 & 6)**	
		7.1 Confidence Intervals for the Mean when sigma is Known (z-test) 7.2 Confidence Intervals for the Mean when sigma is Unknown (t-test)	Ch 7
10	Nov 01	7.3 Confidence Intervals & Sample Size for Proportions 7.4 Confidence Intervals for Variances & Standard Deviations	
		8.1 Steps in Hypothesis Testing – Traditional Method 8.2 z –Test for a Mean	Ch 8
11	Nov 08	8.3 t –Test for a Mean 8.4 z – Test for Proportion	
		8.5 Chi-Square Tests for a Variance & Standard Deviation * 8.6 Confidence Intervals & Hypothesis Testing *	
12	Nov 15	9.1 Testing the Difference Between Two Means – Using the z –Test	Ch 9

		9.2 Testing the Difference Between Two Means of Independent Samples – Using the t –Test 9.3 Testing the Difference Between Two Means: Dependent Samples	
13	Nov 22	9.3 Testing the Difference Between Two Means: Dependent Samples contd* 9.4 Testing the Difference Between Proportions * 9.5 Testing the Difference Between Two Variances *	
	Nov 24	No Class (Thanksgiving Holiday)	
14	**Nov 27**	**Exam 3 – Chapter 7, 8, and 9**	
		11.1 Test for Goodness of Fit * 11.2 Tests Using Contingency Tables *	**Ch 11**
15	Dec 06	11.3 Analysis of Variance (ANOVA) *	
		Catch-up and review	
16	**Dec 13**	**Final Exam - Last Day of Class**	