

THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF MATHEMATICAL SCIENCES

Course Number: MATH 4370-17911

Course Title: Seminar: Statistical Reasoning for Math 4-8 Teachers

Credit Hrs: 3

Term: Fall 2016

Course Meetings & Location: Tuesdays & Thursdays: 4:30 PM – 5:50 PM
LART 122

Prerequisite Courses: MATH 3308 with a grade “C” or better

Course Fee: (if applicable) None

Instructor: Kien Lim

Office Location: Bell Hall 301

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Office Hours: Tuesdays 1:30PM – 2:50PM & By Appointments

Textbook(s), Materials: Textbook: Perkowski, D. A. & Perkowski, M. (2007). Data and Probability Connections: Mathematics for Middle School Teachers. Upper Saddle River, NJ: Pearson Prentice Hall.
Calculator: TI-83 or TI-84

Course Description: This is a seminar course on statistics and probability for prospective middle school math teachers. Topics include univariate and bivariate data, frequency distributions, stem-and-leaf plots, box-and-whisker plots, histograms, scatter plots, regression lines, central measures, spread, quartiles, c theoretical and correlation coefficients, empirical and theoretical probability of simple and compound events, sample spaces, combinations and permutations, binomial, geometric, and normal distributions, random sampling, confidence intervals, residual analysis, and statistical inferences.

- Course Objectives:** Students will
- understand how to organize, display, explore data and characterize patterns using numerical and graphical techniques;
 - make predictions, analyze data, and draw conclusions using statistical concepts like center, spread, and skewness;
 - explore concepts of probability through data collection, experiments, and simulations;
 - solve problems using principles of probability, combinations and permutations concepts;
 - demonstrate an understanding of random samples, sample statistics, and confidence intervals;
 - make inferences about a population using binomial, normal, and geometric distributions;
 - explore bivariate data using techniques such as scatter plots, regression lines, correlation coefficients, and residual analysis;
 - conceive mathematics as a problem solving endeavor that involves sense-making and thinking; and
 - develop the habit of attending to meaning, of analyzing problem situations, and of making conjectures and providing justifications.

Course Activities/Assignments: Students will **participate** in in-class activities, **read** and **understand** assigned readings, create and maintain a folder of notes and resources, watch video clips and answer questions, turn-in homework assignments, take pre-class assessments and prepare for in-class assessments and exams. REEF Polling will be used to enhance student participation. Students are expected to bring a mobile device to class so that they can participate via REEF Polling.

- Assessment of Course Objectives:**
- In-class assessments are administered at the beginning of a class. The questions in these assessments are designed to assess your understanding of the assigned reading of the text and the materials discussed in class.
 - Homework is assigned via Blackboard after each class. Homework assignments are collected on Tuesdays.
 - Examinations are based on your understanding of the concepts and not based on how well you remember to solve certain problems. Most problems in exams require you to think and apply your understanding; they are not necessarily similar to homework problems or in-class problems. To compensate for the higher-cognitive demand questions, the following scale is used for exams:

A	$\geq 80\%$
B	70% - 80%
C	60% - 70%
D	45% - 60%
F	$< 45\%$
 - The final examination is comprehensive. A cheat sheet (both sides) and a graphing calculator are allowed.

Course Schedule:	Weeks	Sections	Topics
	1 – 3	1.1 – 2.3	Elements of Stats, Descriptive Statistics
	4 – 5	3.1 – 3.4	Center, Spread, Box-Whisker Plots
	6	4.1 – 4.4	Bi-variate Data
	7 – 9	5.1 – 6.4	Probability, Counting Techniques
	10 – 12	7.1 – 7.6	Random Variables, Probability Distribution
	13 – 14	8.1 – 8.3	Random Sampling
	15	9.1 – 9.2	Confidence Intervals

TExES Competencies: Competencies 12, 13, 14, 15 & 16 (Mathematics 4-8)
 Competencies 12, 13, 14, 15 & 16 (Mathematics/Science 4-8)

Important Dates: Census Day (Last day to drop without a “W”) Sep 7
 Course Drop Deadline (Last day to drop with a “W”) Oct 28

Grading Policy:

In-class Assessments	20%
Homework Assignments	30%
Mid-term Examination	20%
Final Examination (Dec 6, 4pm)	30%

Make-up Policy:

- There will be no make-up for assignments and assessments. The lowest score of your homework assignments and the lowest score of your assessments will be dropped.
- If you should miss the exam, the possibility of a make-up will be determined on an individual basis. If you cannot provide documentation to support your reason, your exam grade will be counted as the missed-exam grade.

Attendance Policy: Attendance will be taken.

Academic Integrity Policy: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Refer to the UTEP’s Policy at <http://sa.utep.edu/osccr/academic-integrity/>.

Civility Statement: Be punctual.

Disability Statement: If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Military Statement: If you are a military student with the potential of being called to military service and/or training during the course of the semester, please inform your instructor as soon as possible.