MATH 1342– AC1 **Statistics** **Spring 2022**

Instructor: Mr. Karl Wilcox
Room: 1208
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Tutoring times: By appointment before/after school

Textbook: ***Stats: Modeling the World***, 4th AP edition, by Bock, Belleman, and De Veaux.

Course Content: See the attached Student Learning Outcome and Content sheet at the end of the syllabus for topics that are covered.

Attendance: You are expected to attend all scheduled class meetings, arrive on time, and stay for the entire class period. Class attendance is crucial in this course to keep up with the material. If you are missing a class for a school-sponsored event when there is a scheduled quiz or test it is your responsibility to let me know so that we can arrange a make-up time. Quizzes/Exams missed due to an unexcused absence cannot be made up.

Quizzes: We will have 1-2 quizzes per week. If you know you will be absent on a day that a quiz will be given, you need to prepare to take the quiz before or after school the day before or after. Quizzes will be averaged with homework to represent 15% of your overall grade. To receive full credit, work must be shown on quizzes.

Homework: Homework will be assigned 1 – 2 times per week from the textbook. Late homework will not be accepted. Keeping up with homework will help prepare you for the exams. Homework combined with quizzes will represent 15% of your overall grade.

Late Work: **I do not accept late work.** Two homework grades and two quiz grades will be dropped to account for any emergencies or bad days.

Exams: We will have three regular exams and a comprehensive final exam. There will be no make-up or retakes of exams. However, I will replace your lowest exam score with your final exam, if it is to your benefit. If you know that you will miss a scheduled exam, it is your responsibility to let me know at least 3 days before the exam so we can set up an alternate time for you to complete the exam.

Final Exam: We will have a *comprehensive* Final Exam on:
Thursday, May 12th and Friday May 13th, 2021 during the period in Room 1208

Grading Scheme:

Homework and Quiz Average	15%
Each Exam (3)	20%
Final Exam	25%

The following table determines how letter grades will be assigned in the course.

90% and above	80% to 89%	70% to 79%	60% to 69%	Less than 60%
A	B	C	D	F

Drop Date: April 28th, 2022 is the last day to drop a course with a W or withdraw from the university.

Special Needs: Persons with disabilities which may warrant academic accommodations must contact the Student Affairs Office, Suite 112, Houston Harte University Center, (325) 942-2047, to request such accommodations prior to any accommodations being implemented. You are encouraged to make this request early in the semester so that appropriate arrangements can be made. For more information email studentservices@angelo.edu.

Academic Honor Code Statement: Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is available on the web at http://www.angelo.edu/forms/pdf/honorcode5.pdf.

Class Expectations: Students are expected to silence and not use cell phones during the class period. Students will be courteous and attentive when both the instructor and other students are offering answers and/or explanations.

Student Absence for Observance of Religious Holy Day : A student who intends to observe a religious holy day should make that intention known in writing to the instructor one week prior to the absence. "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20.

Mathematics 1342 – Elementary Statistics

Student Learning Outcomes

1. Students will demonstrate factual knowledge including the mathematical notation and terminology used in this course. Students will read, interpret, and use the vocabulary, symbolism, and basic definitions used in statistics including definitions of measures of central tendency; standard deviation; standardized variable; regression line; coefficient of determination; normally distributed variable; sampling distribution of the mean; sampling distribution of the proportion; point estimate; confidence interval estimate; null hypothesis; alternative hypothesis; critical value; and test statistic.

2. The students will describe the fundamental principles including the laws and theorems arising from concepts covered in this course. Students will identify and apply the laws and formulas that result directly from the definitions; for example, calculation of measures of central tendency; standard deviations; coefficients of determination; critical values and test statistics.

3. The students will apply course material along with procedures and techniques covered in this course to solve problems. Students will use the facts, formulas, and techniques learned in this course to find regression equations for data collected; use regression equations to make predictions; calculate probabilities; find confidence intervals for means and proportions; and perform a variety of hypothesis tests.

4. The students will develop specific skills, competencies, and thought processes sufficient to support further study or work in this field or related fields. Students will acquire a level of proficiency in the fundamental concepts and applications necessary for further study in academic areas requiring statistics as a prerequisite, or for work in occupational fields requiring a background in statistics. These fields might include education, business, finance, marketing, computer science, physical sciences, and nursing, as well as further study in other statistics courses.

Course Content

Textbook: ***Stats: Modeling the World***, 4th AP edition, by Bock, Belleman, and De Veaux. The following subjects will be covered:

1. The Nature of Statistics. Classifying statistical studies; sampling procedures.
2. Organizing Data. Grouping data; graphs and charts; distribution shapes; misleading graphs.
3. Descriptive Measures. Mean; median; mode; standard deviation; quartiles; percentiles; deciles; boxplots.
4. Descriptive Methods in Regression and Correlation. Regression equation; coefficient of determination; linear correlation.
5. Probability and Random Variables. Rules of probability; discrete random variables; probability distributions.
6. The Normal Distribution. Areas under the standard normal curve; normally distributed variables.
7. The Sampling Distribution of the Mean. Sampling error; mean and standard deviation of the sampling distribution of the mean.
8. Confidence Intervals for One Population Mean. Calculate confidence intervals for the mean; margin of error; sample size.
9. Hypothesis Tests for One Population Mean. Set up hypothesis tests; errors; perform hypothesis tests.
11. Inferences for Population Proportions. Calculating confidence intervals for one population proportion; performing hypothesis tests for one population proportion.
12. Chi-Square Procedures. Chi-Square Goodness-of-Fit Test.

Core Curriculum Student Learning Objectives:

Core Objective (Critical Thinking): Gather, analyze, evaluate, and synthesize information relevant to a question or issue. (CT1)

- **Course Student Learning Objective:** Students will use mathematical facts, formulas, and techniques to analyze and interpret information related to algebraic expressions and equations.
- **Assessment:** Assessment exam that demonstrates CT1.

Core Objective (Communication): Develop, interpret, and express ideas through effective visual communication. (CS3)

- **Course Student Learning Objective:** Students will create and interpret graphs of algebraic and transcendental functions.
- **Assessment:** Assessment exam that demonstrates CS3.

Core Objective (Empirical and Quantitative Skills): Manipulate and analyze observable facts and arrive at an informed conclusion. (EQS2)

- **Course Student Learning Objective:** Students will use the facts, formulas, and techniques learned in this course to draw conclusions about the properties of various algebraic expressions, equations, and functions.
- **Assessment:** Assessment exam that demonstrates EQS2.

Course Calendar*

*The course calendar is a guideline and is subject to change as necessary.

Week #	Dates	Chapter in Book Covered
1	1/4 – 1/7	Syllabus, Ch 1 and 2
2	1/10 – 1/14	Ch 3, 4
3	1/18 – 1/21	Ch 5
4	1/24 – 1/28	Ch 6, 7
5	11/31 – 2/4	Review, **Test 1**
6	2/7 – 2/11	Ch 10, 11
7	2/14 – 2/18	Ch 11, 12
8	2/21 – 2/25	Ch 12, 13
9	2/28 – 3/4	Ch 13, 14
10	3/7 – 3/11	Review, **Test 2**
11	3/21 – 3/25	Ch 17
12	3/28 – 4/1	Ch 18
13	4/4 – 4/8	Ch 19
14	4/11 – 4/15	Ch 20
15	4/18 – 4/22	Ch 21
16	4/25 – 4/29	Review, **Test 3**
17	5/1 – 5/6	Ch 24
18	5/9 – 5/13	Review and **Final**