MA105 Elementary Statistics (Dual Credit)
Spring 2021
M-W-F 10:54 -11:44 AM

Instructor: Dr. David Fontenot
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Required Text: *Understandable Statistics: Concepts and Methods* (12th ed) by Brase & Brase.
Cengage Learning Publisher. Amazon ISBN-10: 1337119911 ISBN-13: 978-1337119917

CMU Mission Statement: Central Methodist University prepares students to make a difference
in the world by emphasizing academic and professional excellence, ethical leadership, and social
responsibility.

Course Description: This course covers descriptive and inferential statistics. The
descriptive portion analyzes data through graphs, measures of central tendency and
spread. Other statistical practices utilize basic probability, binomial and normal
distributions, estimation of population parameters, hypothesis testing, linear regression
and correlation. Analytical reading and problem solving are required for success in this
course.

Prerequisite: ACT Math Sub-score at least 20

Materials: Students may use any calculator that is not a phone/computer/tablet or similar device.
Note that exams will be structured so that advanced calculators will not confer an advantage.

Student Learning Outcomes
Communication (articulate, multimodal, professional)
    1. Students are articulate, able to speak and write clearly and effectively.
    2. Students are multimodal, able to interpret and express ideas through multiple
    modes of communication.
    3. Students are professional, able to adapt to and interact with others in a confident,
    responsible, and engaged manner.
Curiosity (discover, analyze, create)
    1. Students can discover, explore, and seek solutions based on accumulated
    knowledge and current research.
    2. Students can analyze, evaluate, interpret, and summarize data.
    3. Students can create and innovate using critical thinking and collaborative skills.
Community (serve, respect, lead)
    1. Students will serve others and be ethical and informed citizens.
    2. Students will understand and respect diversity, including other's viewpoints,
    positions, and beliefs
    3. Students will lead creatively and collaboratively to produce positive changes in
    the broader world.

Measurable Learning Outcomes
1. Critically analyze and discuss the type, source, and reliability of data presented in numerical or graphical form.
2. Create appropriate presentations of data using tables and graphs such as box plots, stem-and-leaf plots, line graphs, or histograms.
3. Calculate measures of central tendency (mean, median, mode) and measures of dispersion (MAD, variance, standard deviation) and use them to describe a data set.
4. Calculate probabilities for simple and compound events using the addition, multiplication, and conditional probability rules.
5. Apply counting methods such as permutations and combinations to solve problems involving probability.
6. Find the mean and variance of a probability distribution.
7. Be able to use and apply the binomial, normal, and chi-square distributions to real-world problems.
8. Build estimates and confidence intervals for population parameters (mean, proportion, variance).
9. Test hypotheses involving means, proportions, or variances using confidence interval or p-value methods.
10. Clearly interpret and present conclusions from the results of a hypothesis test for one or two populations.
11. Perform a linear regression on a data set and use it to model, describe, and interpret relationships between data.

Grading Policy
This course requires a minimum of two hours of out-of-class work for every one hour of class work. You can expect to work between 6 and 8 hours for this course outside of class each week if you do not fall behind.

Final grades will be calculated as follows.

Worksheets	50%	A = 90-100%
		B = 80-89.99%
Exams	20% (10% each)	C = 70-79.99%
		D = 60-69.99%
Final Exam	30%	F = Under 60%

Academic Conduct Policy: Any student caught committing academic misconduct will earn a zero for that assignment, quiz or exam. Furthermore, that student will come under the auspices of the Academic Conduct Policy of CMU. It is the student's responsibility to review and understand the CMU Academic Conduct Policy. A grievous offense or multiple offenses will result in course failure.

Grievance Policy: Central Methodist University has established a grievance policy and process designed to provide students and others with a process to resolve potential issues. This policy and process is established to provide persons with an avenue to file a written concern and to establish a process to track and implement changes as a result of said concern. For more detailed

information consult the CLAS catalog at:
http://www.centralmethodist.edu/academics/catalog/clas-catalog/policies/index.php.
If an issue cannot be solved through consultation with the faculty or division chair, students can report an incident/issue within 30 days of the event via the online web form (https://cm.maxient.com/reportingform.php?CentralMethodistUniv).

Attendance: Regular attendance is necessary for this class. Late arrival or early departure from class may be counted as an absence. In the event of an absence, you are responsible for all the material covered in class that day and any schedule changes or class announcements.

Making Up Work: No makeup work is accepted without specific permission. Please let me know as soon as possible if you are going to miss class. Your assignments for the week are still due and need to be submitted on time unless given a specific exception by the professor. If you miss a quiz or test, it needs to be completed when you return and submitted that day.

Equity in Education: Central Methodist University does not discriminate on the basis of race, color, religion, sex, national origin, age, or federally defined disability/state defined handicap ("disability"). This includes but is not limited to recruitment and admission of students, educational programs, services, activities, financial aid, and scholarship programs. The University complies with all federal and state nondiscrimination requirements.

This syllabus is subject to change at the discretion of the instructor with due notice. No change in grading policy will be made.

TENTATIVE SCHEDULE

Week	Topic	Activity
Week #1	Defining Statistics	Introductions
Week #2	Summary Statistics	Worksheet #1
Week #3	Variance	
Week #4	Probability	Worksheet #2
Week #5	Probability	
Week #6	Review	Exam #1: Ch 1 & 2
Week #7	Distributions	
Week #8	Distributions	Worksheet #3
Week #9	The Normal Distribution	
Week #10	Central Limit Theorem	Worksheet #4
Week #11	Hypothesis Testing	Exam #2 Ch. 3, 4, & 5
Week #12	Hypothesis Testing	
Week #13	Hypothesis Testing	Worksheet #5
Week #14	Hypothesis Testing	
Week #15/16	Review Week	Final Exam