

Statistical Methods Syllabus

Fall 2018

Course Number: Stat 2153.1

Class Schedule: TT 8:00-9:15 in MTH 217

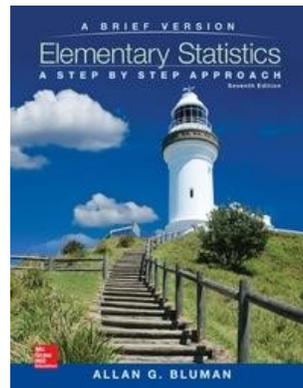
Instructor: Brett Elliott

Office and Hours: MTH 203 MWF 9:30-11:15am 2-3pm
TT 2-3pm

Phone: 580-931-6165

Email: belliot@se.edu **Facebook:** www.facebook.com/brettelliott

Text and Author: *Elementary Statistics* by Bluman, 7th ed., 2015, McGraw-Hill



Course Objectives:

Upon completing the course, the student will be able to:

1. Tell how descriptive and inferential statistics are used in the modern world.
2. Show an understanding of statistics encountered in daily life and recognize bias.
3. Calculate basic probabilities including ones that use the addition and/or multiplication rules.
4. Calculate conditional probabilities.

5. Correctly use various counting methods (including the counting rule, combinations and permutations)
6. Calculate probabilities using various probability distributions including the Binomial and the Normal.
7. Calculate various measures of central tendency and measures of dispersion.
8. Calculate confidence intervals for means and/or proportions and show an understanding of “margin of error”.
9. Conduct basic hypothesis tests involving the mean.

Grading Policies:

Exams

There will be approximately four 100-point exams including the final. The final will be comprehensive and mandatory. No exam scores will be dropped. However, if the final is not your lowest exam score, I will replace your lowest exam score with the score you make on the final. Your exams will count as 80% of your overall grade.

Homework/Quizzes

Homework will be assigned almost every class period (see assignments on next page). However, it won't usually be taken up for a grade. Instead 12-15 minute quizzes over the homework or previous lectures will be given about once a week. Your quiz average will count the same as one test (i.e. 20% of your overall grade).

Your semester average can be calculated as follows:

$$\text{Semester Average} = \frac{4 \text{ exam scores} + \text{quiz average}}{5}$$

Grading will be on a 10-point scale:

90-100	A
80- 89.....	B
70- 79.....	C
60- 69.....	D
Below 60.....	F

The instructor reserves the right to lower the scale but will not raise it.

Mandatory Syllabi Statements

1. **Counseling Center:** Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745-2988 to schedule an appointment during normal working hours Monday-Friday, 8:00AM to 5:00PM. For after-hours mental health emergencies, please call SE Campus Police at 580-745-2911 or the Mental Health Crisis Hotline at 1-800-522-1090.
2. **Disability Accommodations:** Any student needing special accommodations due to a disability should contact the Office of Compliance and Safety, Administration Building, Suite 311 or call (580) 745-3090 (TDD# 745-2704). It is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely manner.
3. **Equity and Non-Discrimination Statement:** Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Director of Compliance and Safety & Title IX Coordinator, (580) 745-3090, or mdavis@se.edu.

Tentative outline of the Course

<u>Section</u>	<u>Assignment</u>
1.1 Descriptive and Inferential Statistics	1, 3, 4, 5, 7, 8, 10, 11, 14
1.2 Variables and Types of Data	3-30 (Multiples of 3)
1.3 Sampling	2-16 (Evens)
1.4 Misuses of Statistics	3-42 (Multiples of 3)
2.1 Frequency distributions	3-21 (Multiples of 3)
2.2 Histograms	3-12 (Multiples of 3)
2.3 Other types of charts and graphs	3-24 (Multiples of 3)
2.4 Scatterplots	3-12 (Multiples of 3)
Using SPSS	Lab assignment handout
Exam 1	
3.1 Measures of central tendency	2, 5, 9, 10, 28, 29, 30
3.2 Measures of variation	1-4, 6, 9, 12, 15, 31, 34
3.3 z-scores and outliers	1, 2, 4, 5, 9-12, 15, 29, 30
Central tendency and variation with SPSS	Lab assignment handout
4.1 Basic probability, law of large numbers	3-30 (Multiples of 3)
4.2 Addition rule	3-24 (Multiples of 3)
4.3 Conditional probability, multiplication rule	3-39 (Multiples of 3)
4.4 Counting rule, permutations, combinations	3, 8, 10, 14, 15-42 (M3)
4.5 Probability using the counting rules	2, 5, 8, 11, 13, 14, 16

Exam 2

5.1 Probability distributions	9-30 (Multiples of 3)
5.2 Expected value and variance	9-18 (Multiples of 3)
5.3 Binomial distribution	2-20 (Evens)
6.1 Standard normal distribution	5-50 (Multiples of 5)
6.2 Applications of the normal distribution	3-21 (Multiples of 3)
6.3 Central Limit Theorem	3-21 (Multiples of 3)
7.1 Confidence intervals for mean (σ known)	3-18 (Multiples of 3)
7.2 Confidence intervals for mean (σ unknown)	3-15 (Multiples of 3)
8.1 (as time allows) Hypothesis testing	6, 9, 11, 13
8.2 (as time allows) z-test for mean	3-15 (Multiples of 3)
Confidence intervals and/or hypothesis testing with SPSS	

Exam 3

Final Exam: Tuesday, December 11th 8:00-10:00am