

Angelina College
Science and Mathematics Division
Math 1342: Elementary Statistics
Instructional Syllabus

Revised: 12/11/2017

I. BASIC COURSE INFORMATION

- A. Course Description** - Elementary Statistics - Math 1342. Three semester hours credit. Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended.
- B. Intended Audience**
Mathematics, science, business and certain liberal arts and fine arts majors.
- C. Instructor** – Avrila Klaus
Office Hours/Location: by arrangement
Telephone: 903-841-8694; please text if no answer (voicemail does not work)
Email: aklaus@angelina.edu

II. INTENDED STUDENT OUTCOMES

- A. Core Objectives Required for this Course**
- 1. Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
 - 2. Communication:** to include effective development, interpretation and expression of ideas through written, oral, and visual communication.
 - 3. Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- B. Course Learning Outcomes for all Sections**
Upon successful completion of this course, students will:
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.

III. ASSESSMENT MEASURES

- A. Assessments for the Core Objectives:**
- 1. Critical Thinking:** Students will answer multiple-choice questions in an assignment which will be used to assess critical thinking skills.
 - 2. Communication:** Student's will answer multiple-choice questions in an assignment which will assess written, oral, and visual communication skills.
 - 3. Empirical and Quantitative Skills:** Student's will answer multiple-choice questions in an assignment which will assess their skills in manipulation and analysis of numerical data to inform conclusions.

B. Assessments for Course Learning Outcomes

1. The student's ability to explain the use of data collection and statistics as tools to reach reasonable conclusions will be assessed through embedded test questions.
2. The student's ability to recognize, examine and interpret the basic principles of describing and presenting data will be assessed through embedded homework and test questions.
3. The student's ability to compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics will be assessed through embedded homework and/or test questions.
4. The student's ability to explain the role of probability in statistics will be assessed through embedded homework and/or test questions.
5. The student's ability to examine, analyze and compare various sampling distributions for both discrete and continuous random variables will be assessed through embedded homework and/or test questions.
6. The student's ability to describe and compute confidence intervals will be assessed through an assigned project.
7. The student's ability to solve linear regression and correlation problems will be assessed through embedded homework and/or final exam questions.
8. The student's ability to perform hypothesis testing using statistical methods will be assessed through embedded homework and/or test questions.

IV. INSTRUCTIONAL PROCEDURES

This course will be taught using a combination of lectures, discussions, and practice exercises. The amount of time spent using any one technique will vary from class to class and from lesson to lesson as determined to be most appropriate by the instructor. The graphing calculator and computer will be utilized as appropriate in classroom demonstrations.

V. COURSE REQUIREMENTS AND POLICIES

A. Required Textbooks, Materials and Equipment

1. Text(s) and supplementary materials
Elementary Statistics Picturing the World by Larson and Farber (Prentice Hall), 6th edition.
- 2.. Specific equipment required of all students
A graphing TI (Texas Instruments) calculator is required. The TI-83 or TI-84 graphing calculator will be used by the instructor in classroom demonstrations.

B. Assignments

1. Specific assignments required for all students (term papers, homework, speeches, participation in community activities, etc.)
See the attached: **Course Content and Topics**
2. Appropriate due dates, schedules, deadlines, etc. as determined by the individual instructor
See the **Course Schedule and Calendar** in MyLabsPlus.

C. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1. **Academic Assistance** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Maria Lopez or Steve Hudman in room 200 of the Student Center. At a postsecondary institution, you must self-identify as a person with a disability; Ms. Lopez and Mr. Hudman will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman, Dean of Student Affairs,

in Room 101 of the Student Center. You may also contact Dean Hudman by phone at (936) 633-5292 or by email shudman@angelina.edu.

2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the Registrar's Office at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.

VI. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.

See the attached Course Outline and Topics and Math 1342 Assignments.

VII. EVALUATION AND GRADING

A. Grading Criteria

1. Your grade will be assessed by:
 - a. Four tests valued at 100 points each for a total of 400 points.
 - b. Out of class assignment valued at 20 points.
 - c. A comprehensive final examination valued at 100 points.
2. Those who drop the course on or before January 31th will not receive a grade for the class. Those dropping between February 1st and April 3rd(inclusive) will receive a W in the course. April 3rd is the last day for dropping a course. Dropping is your responsibility.
3. No make-up test are authorized. The final exam grade will be used a second time to replace any one missed test or the lowest test grade during the semester.

B. Determination of Grade (*assignment of letter grades*) –

Grades will be assigned according to the scale below.

90% - 100% = A

80% - 89% = B

70% - 79% = C

60% - 69% = D

Below 60% = F

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

COURSE CONTENT AND TOPICS

<u>Lesson</u>	<u>Dates</u>	<u>Sections</u>	<u>Descriptions</u>
1	1-18	1.1	Complete Worksheet on Critical Thinking (Adds up to 5 points to Test 1)
		1.2	An Overview of Statistics
		1.3	Data Classification Data Collection and Experimental Design
2	1-23	2.1	Frequency Distributions and Their Graphs
3	1-25	2.2	More Graphs and Displays
		2.3	Measuring Central Tendency
4	1-30	2.4	Measures of Variation
		2.5	Measures of Position
5	2-1		Review
6	2-6		Test 1
7	2-8	3.1	Basic Concepts of Probability and Counting
8	2-13	3.2	Conditional Probability and the Multiplication Rule
		3.3	The Addition Rule
9	2-15	3.4	Additional Topics in Probability and Counting
		4.1	Probability Distributions
10	2-20	4.2	Binomial Distributions
11	2-22		Review
12	2-27		Test 2
13	3-1	5.1	Introduction to Normal Distributions & the Standard Normal Distribution
14	3-6	5.2	Normal Distributions: Finding Probabilities
		5.3	Normal Distributions: Finding Values
15	3-8	5.4	Sampling Distributions and the Central Limit Theorem
		5.5	Normal Approximations to Binomial Distributions
16	3-20	6.1	Confidence Intervals for the Mean (Large Samples)
17	3-22	6.2	Confidence Intervals for the Mean (Small Samples)
		6.3	Confidence Intervals for Population Proportions

18	3-27		Review Distribute project.
19	3-29		Test 3
20	4-3	7.1	Introduction to Hypothesis Testing Collect project
21	4-5	7.2 7.3	Hypothesis Testing for the Mean (Large Samples) Hypothesis Testing for the Mean (Small samples)
22	4-10	7.4 8.1	Hypothesis Testing for Proportions Testing the Difference Between Means (Large Independent Samples)
23	4-12	8.2 8.3	Testing the Difference Between Means (Small Independent Samples) Testing the Difference Between Means (Dependent Samples)
24	4-17	8.4	Testing the Difference Between Proportions
25	4-19		Review
26	4-24		Test 4
27	4-26	9.1	Correlation
28	5-1	9.2 9.3	Linear Regression Measures of Regression
29	5-3		Review
30	5-8		Comprehensive Final Examination

**Math 1342 - Elementary Statistics
Assignments - Spring, 2018**

<u>Lesson</u>	<u>Section</u>	<u>Page</u>	<u>Problems Assigned</u>
1	1.1	6	Critical Thinking Worksheet #s 2, 3, 4, 5, 7, 8, 9, 11, 14, 15, 17, 21, 26, 27, 32, 36, 44, 46, 47
	1.2	13	#s 7, 8, 12, 14
	1.3	24	#s 7, 9, 17, 19, 24, 25, 26, 28, 29
2	2.1	49	#s 4, 5, 7, 8, 9, 11, 13, 15, 17, 21, 23, 31, 32, 37
3	2.2	62	#s 4-8, 19, 24, 26, 28, 30, 32, 37-40
	2.3	74	#s 3, 4, 9-12, 15, 17, 21, 25, 41, 45, 49
4	2.4	93	#s 6, 15, 17, 19, 21, 29, 37, 39, 43
	2.5	109	#s 3, 22, 25, 29, 41, 43, 45, 47
5			Review
6			Test 1 (Sections 1.1 - 2.5)
7	3.1	140	#s 2, 3, 7, 8, 11, 13, 19, 23, 24, 26, 27, 31, 35, 39, 41, 43, 45, 51, 55, 63
8	3.2	152	#s 8, 9, 10, 15, 17, 25, 31
	3.3	162	#s 1, 3, 5, 10, 12, 13, 20, 22, 25
9	3.4	174	#s 3, 4, 7, 9, 19, 23, 28, 35, 42
	4.1	197	#s 4, 5, 13, 14, 20, 22, 24, 25, 27, 28, 29, 33
10	4.2	210	#s 3, 7, 9, 11, 19, 24, 27
11			Review
12			Test 2 (Sections 3.1 - 4.2)
13	5.1	242	#s 2, 3, 7, 9, 10, 11-15, 17, 20, 22, 23, 27, 33, 35, 39, 41, 44, 46, 47, 49, 51, 55
14	5.2	249	#s 2, 4, 6, 9, 15, 19
	5.3	257	#s 2, 3, 9, 17, 19, 21, 23, 25, 27, 24, 39
15	5.4	269	#s 1, 3, 5, 6, 7, 8, 15, 17, 19, 28, 31, 33
	5.5	281	#s 1, 3, 5-8, 9, 11, 13, 25
16	6.1	305	#s 2, 3, 5, 7, 17-20, 37, 38, 47, 51
17	6.2	315	#s 1, 3, 5, 7, 19, 23, 25, 31, 35
	6.3	325	#s 3, 5, 12, 13, 19

18			Review Distribute project
19			Test 3 (Sections 5.1 - 6.3, omit 5.4)
20	7.1	359	#'s 1, 3, 5, 6, 9, 10, 11, 13, 15, 21-24, 27, 30, 31, 37, 39, 41, 43, 45, 50, 55 Collect project
21	7.2 7.3	373 383	#'s 2, 3, 5, 9, 11, 13, 19, 21, 23, 25, 32, 41 #’s 3, 5, 7, 15, 17, 25, 27
22	7.4 8.1	391 424	#’s 1, 9, 13, 14 #’s 4, 6, 8, 17, 21, 23
23	8.2 8.3	432 442	#’s 1, 17, 18, 20 #’s 2, 11, 15, 17, 23
24	8.4	451	#’s 1, 9, 11, 13, 17
25			Review
26			Test 4 (Sections 7.1 - 8.4, omit 7.5)
27	9.1	481	#’s 1, 2, 3, 4, 7, 9-18, 19, 23, 31, 33
28	9.2 9.3	490 504	#’s 3, 4, 5, 17, 19, 27, 28, 29, 30 #’s 7, 9, 11a, 13a, 15a, 19a
29			Review
30			Comprehensive Final Exam