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Angelina College – Division of Science and Mathematics
MATH 1342 – Elementary Statistics
Instructional Syllabus – Spring 2019 (TR)

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*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.*

BASIC COURSE INFORMATION
MATH 1342 – Elementary Statistics: 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. Intended for mathematics, science, business, and certain liberal arts and fine arts majors.

Instructor: Kelly Ward          Office Location and Hours: Meeting location and time by appointment
Phone: 409-224-0272          Email Address: kward@angelina.edu or kward@brookelandisd.net

INTENDED STUDENT OUTCOMES
Core Objectives Required for this Course
- ✓ Critical Thinking: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- ✓ Communication: to include effective development, interpretation and expression of ideas through written, oral and visual communication
- ✓ Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Course Learning Outcomes for all Sections: Upon successful completion of this course, students will…
- ✓ Explain the use of data collection and statistics as tools to reach reasonable conclusions.
- ✓ Recognize, examine, and interpret the basic principles of describing and presenting data.
- ✓ Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
- ✓ Explain the role of probability in statistics.
- ✓ Examine, analyze, and compare various sampling distributions for both discrete and continuous random variables.
- ✓ Describe and compute confidence intervals.
- ✓ Solve linear regression and correlation problems.
- ✓ Perform hypothesis testing using statistical methods.

ASSESSMENT MEASURES
Assessments for the Core Objectives
- ✓ Critical thinking: Students will answer multiple-choice questions in an assignment which will be used to assess critical thinking skills.
- ✓ Communication: Students will answer multiple-choice questions in an assignment which will assess written, oral, and visual communication skills.
- ✓ Empirical and Quantitative Skills: Students will answer multiple-choice questions in an assignment which will assess their skills in manipulation and analysis of numerical data to inform conclusions.

Assessments for Course Learning Outcomes
- ✓ 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.
- ✓ 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.
- ✓ 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.
- ✓ The student's ability to explain the role of probability in statistics will be assessed through embedded homework and/or test questions.
- ✓ 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.
- ✓ The student's ability to describe and compute confidence intervals will be assessed through an assigned project.
- ✓ The student's ability to solve linear regression and correlation problems will be assessed through embedded homework and/or final exam questions.
- ✓ The student's ability to perform hypothesis testing using statistical methods will be assessed through embedded homework and/or test questions.

INSTRUCTIONAL PROCEDURES

The 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.

COURSE REQUIREMENTS AND POLICIES

Required Textbooks, Materials, and Equipment
- ✓ *Elementary Statistics Picturing the World* by Larson and Farber (Prentice Hall), 7th Edition (hardcopy or ebook) with access to **www.angelina.mylabsplus.com**. The access code is included with a new book purchased at the AC bookstore, or the access code may be purchased separately at the bookstore or on the MyLabsPlus website. An electronic copy of the text is provided as part of the MyLabsPlus access.
- ✓ Graphing calculator: A graphing calculator is required. The TI-84 or TI-89 graphing calculator will be used by the instructor in classroom demonstrations.

Course Outline and Assignments
- ✓ See **Course Content and Topics** for course schedule. See MyLabsPlus for assignment due dates.

Course Policies: This course conforms to the policies of AC as stated in the Angelina College Handbook.
- ✓ Educational Accommodations – 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 may fill out the Educational Accommodations application within your AC Portal, under the "Student Services" tab. A Student Success team member will contact you once the application is received. At a post-secondary institution, you must self-identify as a person with a disability in order to receive services; for questions regarding the application process you can visit the Office of Student Success and Inclusion in the Student Center (Room 200) or email access@angelina.edu.  To report any complaints related to accommodations, you should contact Annie Allen, Director of Student Success & Inclusion, in Room 200 of the Student Center. You may also contact Ms. Allen by calling (936) 633-4509 or by emailing aallen@anglina.edu.  To report discrimination of any type, contact Steve Hudman, Dean of Student Affairs, at (936) 633-5292 or shudman@angelina.edu.

- ✓ 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.
- ✓ A student who drops the course on or before January 12th will not receive a grade for the class. Those dropping between January 13th and April 1st (inclusive) will receive a W in the course. April 1st is the last day for dropping a course. Dropping is your responsibility.

EVALUATION AND GRADING

Your grade will be assessed by the following:
- ✓ Four tests valued at 100 points each for a total of 400 points. No make-up tests 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.
- ✓ MyLabsPlus assignments valued at 100 points.
- ✓ Project valued at 20 points.
- ✓ A comprehensive final examination valued at 100 points.

Letter grades will be assigned as follows:
- ✓ A = 90% - 100%
- ✓ B = 80% - 89%
- ✓ C = 70% - 79%
- ✓ D = 60% - 69%
- ✓ F = Below 60%

# MATH 1342 COURSE CONTENT AND TOPICS

Read each assigned section or review content in MyLabsPlus BEFORE arriving to class each week to prepare for the lecture.

| Lesson | Date | Sections | Description |
|---|---|---|---|
| 1 | 01/15 | Intro<br>1.1 | Syllabus; MyLabsPlus Setup<br>An Overview of Statistics |
| 2 | 01/17 | 1.2<br>1.3 | Data Classification<br>Data Collection and Experimental Design |
| 3 | 01/22 | 2.1 | Frequency Distributions and Their Graphs |
| 4 | 01/24 | 2.2 | More Graphs and Displays |
| 5 | 01/29 | 2.3 | Measuring Central Tendency |
| 6 | 01/31 | 2.4<br>2.5 | Measures of Variation<br>Measures of Position |
| 7 | 02/05 | Review | Review for Test 1 |
| **8** | **02/07** | **Test** | **Test 1** |
| 9 | 02/12 | 3.1<br>3.2 | Basic Concepts of Probability and Counting<br>Conditional Probability and the Multiplication Rule |
| 10 | 02/14 | 3.3<br>3.4 | The Addition Rule<br>Additional Topics in Probability and Counting |
| 11 | 02/19 | 4.1<br>4.2 | Probability Distributions<br>Binomial Distributions |
| 12 | 02/21 | Review | Review for Test 2 |
| **13** | **02/26** | **Test** | **Test 2** |
| 14 | 02/28 | 5.1 | Introduction to Normal Distributions and the Standard Normal Distribution |
| 15 | 03/05 | 5.2<br>5.3 | Normal Distributions: Finding Probabilities<br>Normal Distributions: Finding Values |
| 16 | 03/07 | 5.4<br>5.5 | Sampling Distributions and the Central Limit Theorem<br>Normal Approximations to Binomial Distributions |
| 17 | 03/19 | 6.1 | Confidence Intervals for the Mean (Large Samples) |
| 18 | 03/21 | 6.2<br>6.3 | Confidence Intervals for the Mean (Small Samples)<br>Confidence Intervals for Population Proportions |
| 19 | 03/26 | Review | Review for Test 3; Distribute Project |
| **20** | **03/28** | **Test** | **Test 3** |
| Friday | 03/29 | Project | Work on Project |
| 21 | 04/02 | 7.1 | Introduction to Hypothesis Testing; Review Flowchart; Collect Project |

| 22 | 04/04 | 7.2 | Hypothesis Testing for the Mean (Large Samples) |
| | | 7.3 | Hypothesis Testing for the Mean (Small Samples) |
| 23 | 04/09 | 7.3 | Hypothesis Testing for the Mean (Small Samples) |
| | | 7.4 | Hypothesis Testing for Proportions |
| 24 | 04/11 | 8.1 | Testing the Difference Between Means (Large Independent Samples) |
| | | 8.2 | Testing the Difference Between Means (Small Independent Samples) |
| 25 | 04/16 | 8.3 | Testing the Difference Between Means (Dependent Samples) |
| | | 8.4 | Testing the Difference Between Proportions |
| 26 | 04/23 | Review | Review for Test 4 |
| **27** | **04/25** | **Test** | **Test 4** |
| 28 | 04/30 | 9.1 | Correlation |
| | | 9.2 | Linear Regression |
| 29 | 05/02 | 9.2 | Linear Regression |
| | | 9.3 | Measures of Regression |
| 30 | 05/07 | Review | Review for Comprehensive Final Exam |
| **31** | **05/09** | **Final** | **Comprehensive Final Exam** |