This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number
MATH 2103

Course Title
Introduction to Statistics

Course Description
Begins with descriptive statistics: organizing, summarizing, and illustrating data using graphs and measurements such as mean and standard deviation. Continues with a study of the basic rules of probability and probability distributions, with special attention to binomial (discrete) and normal (continuous) probability distributions. Also includes inferential statistics, covering the basics of hypothesis testing. The various simple tests such as z-test and t-test are studied. The useful simple linear regression and correlation are also introduced as the last part of this course. Prerequisite: Intermediate Algebra (with a C or better) or High School Algebra II (with a C or better).

College Mission
South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

☒Critical Thinking   ☐Responsibility   ☐Communication

ACTS Course☒   Program Course ☐

ACTS Outcomes
1. Collection and use of data for analysis
2. Design of experiments
3. Correlation of analysis
4. Analysis of inference
5. Linear regression
6. Use of computers, calculators, and/or software for statistical analysis
7. Use of distribution tables, including solving problems by using them
8. Performing hypothesis test involving means, proportions, standard deviations, and variances
9. Basic principles of probability
10. Confidence intervals
11. Relationship between sample and population

Program Outcomes

Course Outcomes

CLO #	Course Learner Outcomes	Unit Outcomes/ Competencies	ACTS	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
CLO 1	Collection and use of data for analysis	I, 1-2	1		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 2	Design of experiments	I, 1-2	2		CT2			Two problems embedded in the Departmental Final Exam
CLO 3	Correlation of analysis	IV, 9	3		CT2			Two problems embedded in the Departmental Mid-Term/ Final Exam
CLO 4	Analysis of inference	III, 6-8	4		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam

CLO 5	Linear regression	IV, 9	5		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 6	Use of computers, calculators, and/or software for statistical analysis	I, 1-2; II, 3-5; III, 6-8; IV, 9	6		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 7	Use of distribution tables, including solving problems by using them	II, 3-5; II, 6-8	7		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 8	Performing hypothesis test involving means, proportions, standard deviations, and variances	III, 6-8	8		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 9	Basic principles of probability	II, 3-5	9		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 10	Confidence intervals	III, 6-8	10		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam
CLO 11	Relationship between sample and population	I, 1-2	11		CT2			Two problems embedded in the Departmental Mid-Term/Final Exam

Unit Outcomes/ Competencies

Unit I. Descriptive Statistics
1. Introduction to Statistics
    1.1. An Overview of Statistics
    1.2. Data Classification
    1.3. Data Collection and Experimental Design

2. Descriptive Statistics
    2.1. Frequency Distributions and Their Graphs
    2.2. More Graphs and Displays
    2.3. Measures of Central Tendency
    2.4. Measures of Variation
    2.5. Measures of Position

Unit II. Probability & Probability Distributions
3. Probability
    3.1. Basic Concepts of Probability and Counting

4. Discrete Probability Distributions
    4.1. Probability Distributions

5. Normal Probability Distributions
    5.1. Introduction to Normal Distributions and the Standard Normal Distribution
    5.2. Normal Distributions: Finding Probabilities
    5.3. Normal Distributions: Finding Values
    5.4 Sampling Distributions and the Central Limit Theorem

Unit III. Statistical Inference
6. Confidence Intervals
    6.1 Confidence Intervals for the Mean (Large Samples)
    6.2 Confidence Intervals for the Mean (Small Samples)

7. Hypothesis Testing with One Sample
    7.1. Introduction to Hypothesis Testing
    7.2. Hypothesis Testing for the Mean (Large Samples)
    7.3. Hypothesis Testing for the Mean (Small Samples)
    7.5. Hypothesis Testing for Variance and Standard Deviation

8. Hypothesis Testing with Two Samples
    8.1. Testing the Difference Between Means (Large Independent Samples)
    8.2. Testing the Difference Between Means (Small Independent Samples)

Unit IV. More Statistical Inference
9. Correlation and Regression
    9.1 Correlation
    9.2. Linear Regression

Assessment Description(s)
Students completing the course will take a departmental mid-term and final exam. The questions on the mid-term and final exam will be correlated to the outcomes listed above. For each outcome, the number of course completers showing satisfactory proficiency will be indicated.

Materials and Technological Requirements
Elementary Statistics: Picturing the World Plus MyStatLab with Pearson eText -- Access Card Package (5th Edition), by Larson/Farber published 2012 under ISBN 9780321891877 and 0321891872. TI-84 Plus graphing calculator (or TI-83 Plus). Students have the option of buying the hard copy textbook if needed.

Class Attendance Policy
Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester
Courses which meet once a week...2 absences
Courses that meet twice per week ....3 absences
Courses that meet four times per week ....5 absences

Summer Session
Courses that meet four times per week in a five week session ....3 absences
Courses which meet two evenings per week in a 10 week session ....3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function
Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave
For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
3) Resume their studies where they left off once they return to classes
4) Be allowed to make up any missed work related to medical leave
5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy

Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty. Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.

- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a Student Academic Misconduct Form, written report of the incident, to the appropriate dean.
- The dean will submit form to Vice President for Learning to determine disciplinary action.
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's academic appeals procedure.

Equal Opportunity-Affirmative Action Statement

South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services

Library Homepage: http://southark.libguides.com/homepage Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:

If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. . VPSS Contact: 870.875.7262

The Early Alert System

In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

Behavioral Review Team

At South Arkansas Community College (SouthArk), we are committed to proactive leadership in student wellbeing and campus safety. By focusing on prevention and early intervention with campus situations that involve any person experiencing distress or engaging in harmful or disruptive behaviors, the BRT will serve as the coordinating hub of

existing resources to develop intervention and support strategies and offer case management. Students, faculty, staff, and campus guests are encouraged to report any person on campus who is a concern. BRT Contact: 870.875.7262 BRT@southark.edu

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