Cincinnati Christian University
Foster School of Biblical Studies, Arts & Sciences
Fall 2019 Syllabus
for
MATH 240 Statistics
(3 semester credit hours)

Meeting Time: Monday Evenings (7:00 – 9:40 pm)

Instructor and Contact Information:
Tom Flischel   email: thomas.flischel@ccuniversity.edu

Course Description: A study in the application of statistical analysis, hypothesis testing, and regression analysis in psychological research and business decision-making. Topics include descriptive statistics, probability, probability distributions, sampling, and interval estimation. Common statistical software will be shown to analyze and interpret data. Prerequisite: Satisfactory performance on a placement examination or successful completion of MATH 010.

Course Rationale: CCU is committed to providing a Christ-centered, liberal arts education taught with a Christian worldview in students' chosen field of study. Statistics is an intuitive form of mathematics demonstrating the logical nature of God's creation.

Arts & Sciences Departmental Outcomes:
        CCU's Arts & Sciences program is designed to prepare students to
1. communicate effectively in both oral and written forms in a variety of rhetorical contexts, including Standard English,
2. adeptly utilize modern research and writing tools,
3. identify decisive events and ideas in the human experience and assess their influences on modern culture and thought,
4. employ critical and creative thinking and mathematic and scientific principles for problem solving, literary and socio-cultural analysis, intercultural understanding, and research in the sciences and humanities,
5. demonstrate the integration of academic insights and experiences by constructing and employing a personal framework in which ethical decisions can be made in light of societal values and a Christian worldview.

Course Objectives: Employ critical and creative thinking and mathematic and scientific principles for problem solving, literary and socio-cultural analysis, intercultural understanding, and research in the sciences and humanities (supports A&S 4).

At the end of this course the student will be able to:
- Define statistical terms and describe their meaning (supports A&S 4)
- Summarize data through statistical terms and charts (supports A&S 4)
- Compute uncertainty through probability formulas and statistical distributions (supports A&S 4)
- Interpret the use and general results of hypothesis tests (supports A&S 4)
- Comprehend the relationship between two variables using correlation and regression (supports A&S 4)

Assignments:
Homework will be assigned from the textbook to provide students a deeper understanding of concepts discussed in the class. Assignments will be due the next day of class.

Textbook:
Elementary Statistics Using Excel, 6th Edition by Mario F. Triola
Pearson, 2017. ISBN-10:0134506626

Grading Policy:
Letter grades will be assigned based on the published grade point system in the CCU Academic Catalog. Grades will be based upon three examinations (30% each) and homework assignments (10%).

Instructor reserves the right to alter the grading formula to more adequately reflect an individual student's learning. This will be done to improve the student's grade, not to penalize the student.

Classroom Structure:
Class periods will consist of a formal teaching time and working through problems similar to homework assignments. Class participation is extremely important to make sure any questions are answered and to make the class as interesting as possible.

Tips for Success in the Class:
This class meets once a week and builds upon information from prior weeks. It is imperative to attend every class, keep up with assignments, and proactively ask questions.

Attendance and Integrity Policies:
CCU policies regarding attendance and academic integrity will be followed.

Accommodations: Students who require academic accommodations due to a documented physical, psychological, or learning disability may request assistance from the Student Services Department. Students are encouraged to complete this process within the first two weeks of the semester. The Student Services Department is located on the upper level of Presidents Hall. You may also contact the office by phone at 244-8150. Tutoring services in various subjects are also available.

Course Agenda:

Fall 2019 Course Outline
Unit 1: Describing, Exploring, and Comparing Data **(Chapters 1 - 3)** • Statistical and Critical Thinking • Types of Data; Collecting Sample Data • Expressing Data Through Graphs & Charts • Measures of Center and Variation • Empirical Rule & Chebyshev's Theorem **TEST #1**
Unit 2: Probability, Discrete & Continuous Distributions **(Chapters 4 - 6)** • Basic Probability Concepts • Addition and Multiplication Rule • Binomial Probability Distribution • Normal Probability Distribution • Sampling Distributions and Estimators **TEST #2**
Unit 3: Hypothesis Testing, Correlation and Regression **(Chapters 8 – 10, 12)** • Basics of Hypothesis Testing • Interpreting Results of Hypothesis Testing • Specific Hypothesis Tests • Discerning Correct Hypothesis Test to Use • Correlation • Regression **TEST #3**

The instructor reserves the right to change or amend any part of this course plan as deemed necessary.