



Application for Offering a Course Using a Distance Education Format

1. Course Prefix and Number: STA 291

Course Title: Statistical Method

Course Description: Introduction to principles of statistics. Statistical description of sample data including frequency distributions, measures of central tendency and measures of dispersion. Theoretical distributions, statistical estimation, and hypothesis testing. Introduction to simple linear regression and correlation. Prereq: MA 113, MA 123, MA 131, or equivalent.

Course Objectives/Competencies:

COMMUNICATE EFFECTIVELY

- Learning outcome: Students should be able to write clearly.
- Course objective: Express verbal and quantitative information accurately and coherently.
 - * Instructional Objective: In response to insights gained in class discussions, students will use their composition skills to write coherent essay responses in statistical situations and display mathematical responses in logical and accurate form on assignments, activities and exams.

- Learning outcome: Students should be able to read with comprehension.
- Course objective: Evaluate statistical information in written material for appropriate use of procedures, adherence to underlying assumptions and deceptive or erroneous reasoning.
 - * Instructional Objective: In response to insights gained in class discussions and from reading the text, students will critically analyze, summarize, and interpret statistical information in a variety of reading materials on assignments, activities and exams.

- Learning outcome: Students should be able to use symbolic language.
- Course objective: Differentiate between "actual" and "estimated" numerical measures and models by using appropriate statistical notation.
 - * Instructional Objective: As a result of class demonstration, students will learn and use appropriate statistical notation on all assignments, activities and exams.

- Learning outcome: Students should be able to use technology to process information.
- Course objective: Use technology to facilitate the computational aspects of statistical analysis.
 - * Instructional Objective: As a result of class demonstration, students will learn and use technology such as graphing calculators or computers to compute statistical values.

THINK CRITICALLY

- Learning outcome: Students should be able to demonstrate problem-solving skills.
- Course objective: Recognize and use probability distributions to compute probabilities based on provided information.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn and demonstrate when and how to find probabilities in real life situations on assignments, activities and exams.

- Learning outcome: Students should be able to analyze/interpret creative expressions, resources, and/or data.
- Course objective: Use graphical and numerical data analysis techniques to describe samples and verify underlying assumptions.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn and demonstrate how to produce and interpret graphical and numerical summaries of data and to verify assumptions on assignments, activities and exams.

- Learning outcome: Students should be able to integrate knowledge.
- Course objective: Integrate the knowledge of random assignment/sampling and sampling distribution behavior into the selection and application of appropriate inferential procedures to test hypotheses and estimate parameters.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn when and how statistical results can be used and will demonstrate this knowledge on assignments, activities and exams.

- Learning outcome: Students should be able to use logical thinking to draw conclusions.
- Course objective: Recognize and use statistical techniques to understand and draw conclusions about the world within the limitations of practical and statistical assumptions.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn how to make inferences about population parameters as well their limitations and will demonstrate on assignments, activities and exams.

LEARN INDEPENDENTLY

- Learning outcome: Students should be able to apply learning.
- Course objective: Use appropriate statistical methods to describe and model associations.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn and apply statistical techniques to model associations between variables and will express appropriate limitations on assignments, activities and exams.

- Learning outcome: Students should be able to think creatively.
- Course objective: Differentiate between statistical concepts of causation vs. correlation, correlation vs. association, experimental vs. observational studies, and synthesize these concepts into the decision process.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn and accurately communicate these statistical concepts and associated limitations in making decisions in a variety of contexts on assignments, activities and exams.

- Learning outcome: Students should be able to value new ideas and differing perspectives.
- Course objective: Use various statistical techniques to understand real world situations and make decisions, recognizing that data collected through sampling is subject to variation which results in inherent uncertainty in all decisions.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn how and when statistical techniques and concepts can be used to gain insight into differing ideas and perspectives, as well as the limitations of such usage, and will demonstrate these skills and insights on assignments, activities and exams.

EXAMINE RELATIONSHIPS IN DIVERSE AND COMPLEX ENVIRONMENTS

- Learning outcome: Students should be able to use mathematics to analyze physical relationships.
- Course objective: Use appropriate statistical tools to model real phenomenon and to make inferences from samples to populations.
 - * Instructional Objective: As a result of classroom interactions and from reading the text, students will learn and correctly apply statistical techniques to describe and model real data and will use this information to make inferences on assignments, activities and exams.

2. **Effective date (semester and year):** Fall 2004

3. **Describe the type of distance learning delivery method to be used.** The course will be taught via the World Wide Web using a course management system through the Kentucky Community and Technical College System.

Program/Area:

Math and Statistics

Program/Area Coordinator:

Luke Patten Date: 3/11/04

Division:

Physical Sciences and Engineering Technologies

Division Program Development Committee Chair:

Barbara Elyse-Miller Date: 3/12/04

Division Chair:

Cindy Barber Date: 3/11/04

Academic Council for Lexington Community College Chair:

[Signature] Date: 4-21-04

This form is applicable for proposals that do not have to be submitted to the UK Senate. Examples include but are not limited to the following:

- Application for Removal from *General Education List*
- Application for Inclusion on *General Education List*
- Addition to, Change in, or Deletion from *Lexington Community College: Credit for External Experiences Manual*
- Application for Offering a Course Using a Distance Education Format