Core Curriculum Course Submission
Criteria: Math

1. General Information

a. Originating Person	b. Contact Person's E-mail	c. Contact Phone	d. Date
Marvelyn Tapp	mjherbert@ualr.edu	501-569-8100	04/15/2014

e. College/School	f. Department/Program
College of Arts, Letters, Sciences	Mathematics and Statistics

☒ **Submission Statement**
By submitting this form, we acknowledge our understanding that the Core Council has the authority to review approved courses to ensure they continue to meet the established goals and outcomes of that category of the core; that the Council has authority to develop a core assessment program; and that the Council will be developing review and assessment policies by the end of 2014. Further, we agree that if this course is approved, we will participate in the university-wide assessment of the core.

☒ **Chair and Dean Awareness**
A separate statement from the chair must be included that states that the department faculty have approved this course for submission to the core and that the chair takes responsibility for informing the Dean about the submission of the course.

2. Course Information

a. Course ID	b. Current Title
STAT 2350	Introduction to Statistical Methods

c. Catalog Description

Prerequisite: MATH 1302 or 1315 or 1321 or equivalent. Introduction to the fundamental ideas of statistics, including descriptive statistics, normal distributions, sampling experiments, tests of hypotheses, and elementary probability. This course cannot be applied as upper-level credit toward a major in mathematics. Three hours lecture. Three credit hours.

d. How will your department ensure a level of consistency among sections of this course? Who will be responsible for this?

The Chair collects and reviews all syllabi for consistency of learning objectives. New faculty, adjunct faculty, and teaching assistants are given sample syllabi for the courses they teach. Chair and peer review committee are responsible for ensuring consistency among all sections of Statistical Methods. All sections of Statistical Methods use a mandatory online homework/quiz delivery system.

Educational Goals	Learning Outcomes students will	Learning Objectives: At the end of the course students will be able to	Assignments	Explanation
Knowledge 1 – Concepts, methodologies, findings, and applications of mathematics and the social and natural sciences, engineering and technology.	1. understand mathematical relationships among quantities;	**Learning Objectives 1.1** **Recognize different types of data, identify sampling methods, organize data into frequency tables, construct and read statistical graphs for specific types of data; interpret measures of center, measures of variation, and measures of position, interpret shape and distribution of data, interpret likelihood of events based on probabilities; recognize discrete probability distributions, including binomial distributions; recoginze and interpret data that is normally distributed; interpret confidence intervals; conduct hypothesis tests and interpret conclusions; understand and interpret correlation between two variables**	**Assignments 1.1** **Class discussions, homework, quizzes and exams.**	**Explanation 1.1** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**
	2. understand fundamental mathematical/algebraic operations;	**Learning Objectives 1.2** **Calculate measures of center, measures of variaton, and measures of position, calculate probabilities, mean and variance from discrete distributions, including binomials distributions; calculated probabilities from**	**Assignments 1.2** **Class discussions, homework, quizzes and exams.**	**Explanation 1.2** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final**

		bell-shaped data using standard normal and student's distributions; calculate confidence intervals and statistics for hypothesis tests; calculate correlation coefficients and variables for regression equations.		**exam.**

Educational Goals	Learning Outcomes students will	Learning Objectives: At the end of the course students will be able to	Assignments	Explanation
Skills 1 – Communication	1. use basic mathematical formulas and terminology:	**Learning Objectives 1.1** **calculate mean, median, mode, midrange, variance, standard deviation, and range, percentiles, , probabilities, confidence intervals, test statistics, correlation, use regression equation to predict values**	**Assignments 1.1** **Class discussions, homework, quizzes, and exams.**	**Explanation 1.1** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**
	2. explain orally and in writing the mathematical "reasonableness" of a statement that is presented as being implied by data	**Learning Objectives 1.2** **Explain why a calculated statistic may not be reasonable based on the original data, recognize the domain of probablities and when a calculated answer may be incorrect or unreasonable**	**Assignments 1.2** **Class discussions, homework, quizzes and exams**	**Explanation 1.2** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**
	3. communicate about math precisely orally and in writing	**Learning Objectives 1.3** **Communicate orally or in writing the type of technique, distribution, or procedure to use and why.**	**Assignments 1.3** **Class discussions, homework, quizzes and exams**	**Explanation 1.3** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**
Educational Goals	**Learning Outcomes students will**	**Learning Objectives: At the end of the course students will be able to**	**Assignments**	**Explanation**
Skills 2 – Critical	1. interpret, analyze, and	**Learning Objectives 2.1**	**Assignments 2.1**	**Explanation 2.1**

Thinking, Quantitative Reasoning, and Solving Problems Individually and Collaboratively	identify appropriate applied math models, data and graphs;	**Analyze and interpret graphs to identify trends, spread of data and unusual data values, interpret answers to statistical problems to answer questions in the context of the problem, interpret probabilities to determine likelihood of the occurance of an event, interpret confidence intervals to indentify range of likely values, interpret results of hypothesis testing, interepert correltion coefficients to determine relationship between dependent and independent variables.**	**Class discussions, homework, quizzes and exams.**	**The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**
	2. develop abstract and quantitative reasoning ability;	**Learning Objectives 2.2** **Determine which type of graphing technique to use based on understanding of the type of data and desired results to share, determine which measure of center best represents a data set based on desired outcome, select optimal probability formula baed on given information, determine which distribution to use in confidence intervals and hypothesis tests based on characteristics of the data. Decipher pertinent information in a word problems, understand how statistics can be used to be**	**Assignments 2.2** **Class discussions homework, quizzes and exams.**	**Explanation 2.2** **The learning objectives will be accomplished by in-class problem solving and discussions and will be assessed via online homework assignments, quizzes, tests, and the final exam.**

		misleading or misused.		

Educational Goals	Learning Outcomes students will	Learning Objectives: At the end of the course students will be able to	Assignments	Explanation
Skills 3 – Information Technology	1. make appropriate decisions regarding the use of technology when solving problems, recognizing both the insight to be gained and the limitation;	**Learning Objectives 3.1** **Effectively use a graphing calculator to calculate basic statistics, find probabilities, analyze graphs, find confidence intervals, and run analysis of variance procedure.**	**Assignments 3.1** **Class discussions, homework, quizzes, and exams.**	**Explanation 3.1** The learning objectives will be accomplished via in-class problem solving where instructors demonstrate their strategies and techniques on proper use of the technology (online videos) and will be assessed via online homework assignments, test, quizzes and exams.
	2. use information resources like the internet reflectively for inquiry, exploration, and communication;	**Learning Objectives 3.1** **Use the internet to communicate via email and as a resource for supplemental explanations**	**Assignments 3.1** **Online homework and quizzes**	**Explanation 3.1** The learning objective will be accomplished via the internet. Students are encouraged to seek alternate explanations via the internet. Instructors may communicate with students via email at any time during the semester.
Educational Goals	**Learning Outcomes students will**	**Learning Objectives: At the end of the course students will be able to**	**Assignments**	**Explanation**
Values 1 – Personal Responsibility and Ethical Behavior	1. take responsibility for completing assignments in an honest and ethical manner, working on their own when required and acknowledging resources when used;	**Learning Objectives 1.1** **Understand the importance of following the UALR policies on academic integrity.**	**Assignments 1.1** **Proctored exams**	**Explanation 1.1** **Throughout the semester, students are reminded of the importance of following the UALR, departmental, and course (stated on the syllabus) policies of academic dishonesty to accomplish this objective.**
	2. understand the duty to be	**Learning Objectives 1.2**	**Assignments 1.2**	**Explanation 1.2**

	precise and accurate with data;	**Understand that precision and accuracy are critical components of interpreting data and analyzing problems correctly. Learn the ways that data can be misused or misinterpreted and lead to poor communication of intended results**	**Class discussions, homework, quizzes, and exams.**	**Throughout the semester, students are reminded of the importance of following the UALR, departmental, and course (stated on the syllabus) policies of academic dishonesty to accomplish this objective.**
Educational Goals	**Learning Outcomes students will**	**Learning Objectives: At the end of the course students will be able to**	**Assignments**	**Explanation**
Value 3-Global and cultural Understanding	1. analyze "real world" implications and develop mathematical models that aid in the understanding of current global issues.	**Learning Objectives 3.1** **Understand how statistics is used in real world problesm. Recognize that statistics can be used to collect, organize, summarize, analyze and make predictions or inferences about real world problems.**	**Assignments 3.1** **Class discussions, homework, quizzes and exams.**	**Explanation 3.1** **Throughout the semester, students are reminded of the importance of following the UALR, departmental, and course (stated on the syllabus) policies of academic dishonesty to accomplish this objective.**

Additional Comments:

Belinda Blevins-Knabe — Approved by Core Curriculum Committee — 10-27-14 — Date

Approved by Provost — 11/7/2014 — Date

Approved by Chancellor — 11/11/14 — Date