`CCC 18015`

Core Curriculum Management

New Core Component Proposal

Date Submitted: 10/23/17 11:58 am

Viewing: **STAT 201-GE : Elementary Statistical Inference**

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Changes proposed by: adabney

Contact(s)

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Course Prefix	STAT	Course Number	201
Academic Level	UG		
Complete Course Title	Elementary Statistical Inference		
Abbreviated Course Title	ELEM STAT INFERENCE		
Crosslisted With			
Semester Credit Hour(s)	3		

Proposal for:
   Core Curriculum Addition/Edit

How frequently will the class be offered?	Fall, Spring
Number of class sections per semester	2
Number of students per semester	410

Historic annual enrollment for the last three years

Last year:	437	Previous year:	414	Year before:	381

Core curriculum

Foundational Component Area	Core Mathematics (KMTH)
TCCN prefix/number	MATH1342

Foundational Component Area: Mathematics

How does the proposed course specifically address the Foundational Component Area definition above?

Students in this course learn how to think probabilistically and work with data in the natural and social sciences and everyday life. Upon successful completion of this course, students will be able to:

♣ Students will identify appropriate study designs, summary statistics, and graphic displays for real-life situations. They will understand the types of relationships that can be established from differing study designs (correlation vs. causation).

♣ Students will analyze real-life study designs for potential sources of error and bias.

♣ Students will understand the basics of data ethics in regards to designing studies and collecting data.

♣ Students will apply calculation of summary statistics, z-scores, and test statistics in order to facilitate statistical inference.

♣ Students will understand basic probability rules and use them to calculate probabilities.

♣ Students will understand probability and sampling concepts including independence, simulation, and sampling distributions.

♣ Students will calculate and interpret confidence intervals.

♣ Students will perform and interpret hypothesis tests.

In Workflow

1. **STAT Department Head**
2. **SC College Dean UG**
3. **CCC Preparer**
4. CCC Chair
5. Faculty Senate Preparer
6. Faculty Senate
7. Provost II
8. President
9. Curricular Services

Approval Path

1. 10/23/17 1:08 pm
   Valen Johnson
   (vejohnson): Approved
   for STAT Department
   Head
2. 10/23/17 1:15 pm
   Lucas Macri (lmacri):
   Approved for SC College
   Dean UG

Core Objectives:

Critical Thinking (to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information):
♣ Students will analyze study designs for potential sources of error and bias.
♣ Students will assess the ethical implications of a study design.
♣ Students will correctly interpret the results of a statistical study, recognizing in particular any limitations on the extent of inference that is possible, given the study's design.
♣ Students will apply the appropriate statistical techniques to a given data set.
♣ Students will assess the assumptions of any statistical models used and make appropriate modifications to the analysis to ensure that results are unbiased and reliable.

Communication (to include effective development, interpretation and expression of ideas through written, oral and visual communication):
♣ Students will symbolically relay probabilistic information and concepts by creating random variables and writing probability calculation statements.
♣ Students will synthesize the results of a data analysis into a written report that is accessible to a lay audience.
♣ Students will explain in writing probability and statistical inference solutions to problems.
♣ Students will justify statistical models used in the analysis of real data.
♣ Students will create and interpret insightful graphics for visualizing real data.

Empirical and Quantitative Skills (to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions):
♣ Students will formulate and compute probabilities.
♣ Students will correctly compute and interpret p-values, confidence intervals, and other numerical summaries of data to enable statistical inference.
♣ Students will use statistical software to compute numerical and categorical summaries of real data.
♣ Students will critically assess published reports involving graphs and numerical summaries of real data.

Please ensure that the attached course syllabus sufficiently and specifically details the appropriate core objectives.

Attach Course Syllabus	STAT 201.docx
Reviewer Comments	**Alan Dabney (adabney) (10/23/17 12:01 pm):** We have letters of support from several other departments, including Mathematics.

Key: 460