Academic Learning Compact

Statistics

Program Mission Statement

The mission of the Department of Mathematics and Statistics is to provide an excellent education for students in mathematics and statistics, to focus scholarly efforts on expanding our knowledge of those two disciplines, and to participate in activities that promote mathematics and statistics in relevant ways. Our programs are designed to provide majors and graduate students with the background necessary to pursue quantitative careers in mathematics or statistics as well as the background to pursue more advanced degrees. We also strive to provide students in General Education mathematics courses with substantive skills in quantitative and abstract reasoning and in the use of mathematics and statistics as computational and analytical tools.

Our courses are designed to educate in an appealing and thought-provoking manner. We strive to instill our students with an appreciation for the power of mathematics and statistics as well as a desire to be lifelong learners. Department faculty are encouraged to engage in research projects that either yield new results in their areas of expertise or that apply to problems of interest to scholars in other disciplines. Department faculty are also encouraged to be involved in meaningful professional service to the university and the disciplines regionally, nationally, and internationally. In addition, all of our endeavors are subject to self-reflection in an effort to maximize their effectiveness.

Student Learning Outcomes

Graduates will be able

Content/Discipline-Specific Knowledge/Skills

• Recognize and apply principles of theoretical statistics to solve probability problems and mathematical statistics problems.

• Recognize and apply principles of applied statistics such as analysis of variance, linear regression, correlation and nonparametric methods to analyze data.

• Use statistical software such as SAS to solve problems.

• Describe data sets using standard summary and graphical methods.

Communication Skills

• Explain statistics in writing.

• Explain statistics verbally.

• Prepare coherent and correct reports and solutions to problems.

Critical Thinking Skills

• Design an experiment using standard methodology.

• Choose, implement and interpret appropriate statistical inferences.

• Develop and assess data-driven models.

• Use technology to solve problems.

Assessment Approaches

We used embedded assessment in relevant required major and elective courses during the academic year (STA 4202, STA 4322, STA 4502, STA 4504). All students in the courses were assessed. Data was collected by course instructors from exam questions, homework assignments, and reports (projects). The chair collected the data. The chair compiled this information and produced the report below.

For each category using embedded assessment, the total number of answers in each category (3, 2, 1) was computed. Then the percentages for each category were computed. Each table below the corresponding Learning Outcome contains this

information. The scale used may be interpreted as follows: 3 - excellent, 2 - satisfactory, 1 - unsatisfactory.