Jan 1st, 12:00 AM

18. Statistics

University of Central Oklahoma

Abstracts from the 2014 Oklahoma Research Day

Held at the University of Central Oklahoma

05. Mathematics and Science

18. Statistics

05.18.01 Variables Influencing Future Traffic Fatalities in Oklahoma

Brendon, Balch , Kristen Highful, Tracy Morris

University of Central Oklahoma

This research is part of a program in the Department of Mathematics and Statistics at UCO called SCHOLAR (Statistical Consulting Help for Organizational Leaders and Academic Researchers). SCHOLAR consists of a team of UCO students and faculty who provide statistical consulting services to students, faculty, and staff at UCO, as well as industry and non-profit organizations in the community. One of the clients of SCHOLAR is the Oklahoma Highway Safety Office (OHSO). The OHSO gathers data and keeps records of vehicle accidents in the state and uses this information to help other state agencies, like the Oklahoma Department of Transportation and the Oklahoma Highway Patrol, to develop programs to address highway safety issues. The OHSO must also make future projections for the number of traffic fatalities and report this information to the National Highway Traffic Safety Administration. Currently, SCHOLAR students and faculty analyze data provided by the OHSO to determine trends in the number of traffic fatalities over time and to make projections for the future. The goal of this project is to find additional variables that could improve the accuracy of projections of the number of traffic fatalities in Oklahoma. Variables of particular interest include those related to the economy and the amount of road construction in the state, but we will also consider other variables.

05.18.02 A Statistical Analysis of the Influences on Historical Property Ownership in Oklahoma

Tracy, Morris , Ariel Webb, Jessica Sanders

University of Central Oklahoma

Project SCHOLAR (Student Consulting Help for Organizational Leaders and Academic Researchers) is a statistical consulting service composed of students at the University of Central Oklahoma. Faculty from the Department of Mathematics and Statistics oversee the work of the SCHOLAR students on multiple projects sent in by other researchers. The SCHOLAR students were asked to analyze data pertaining to the significant factors that lead to historical home or business ownership. A survey was given to a sample of historical property owners in Oklahoma, in which they were to list basic demographic information such as gender, age, marital status, and ethnicity, as well as whether or not they owned or inherited the property. The goal of this study is to determine what factors are related to historical property ownership and to examine the difference between residential and commercial properties, as well as differences between properties located in rural and urban areas. This study is important, as many of these historical properties require continuous preservation, and the results of this study can be used to further enhance the efforts of communities and preservation officers.

05.18.03 A Study in Determining Predictive Models of Future Success for Students Applying to the UCO Nursing Program

Benjamin, Suderman , Ariel Webb, Brendon Balch, Carl SliferTracy Morris, Zindaba Tembo

University of Central Oklahoma

The nursing program at the University of Central Oklahoma (UCO) has an abundance of students applying for limited enrollment slots. In highly competitive selection processes, prospective students and the nursing program, at large, benefit from the identification of those qualities exhibited by students that best indicate completion of the program and future success in nursing. Members of the Nursing Department conducted a study on enrolled nursing students in an attempt to discover the most important factors for predicting the likelihood of individual students completing the nursing program. The studied variables included TEAS scores and GPAs. The students were tracked for four years and were grouped according to whether or not they finished the nursing program. Using various statistical approaches including multiple and logistic regression we were looking for predictive models with a significant correlation with program completion. This work was completed by Project SCHOLAR (Statistical Consulting Help for Organizational Leaders and Academic Researchers) students. SCHOLAR is an interdisciplinary student statistical consulting service at UCO. SCHOLAR students work collaboratively under the supervision of faculty from the Department of Mathematics and Statistics on various projects submitted from other researchers on campus and organizations in the community.