**Attitudes of university students who took statistics introductory courses
and its relationship with the academic success in the subject**

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Considering the range of changes in the instruction and learning of statistics, several questions emerge regarding how those changes influence students' attitudes. Equally, other questions emerge to reflect that statistics is a fundamental course in the university academic programs because of its relevance to the professional development of the students. To address these questions, this research studied the attitudes toward statistics of undergraduates who took introductory statistics courses. Also, it analyzed how those attitudes relate to different demographic and academic characteristics, including the academic success in these courses. Studying the students' attitudes toward statistics is vital since they affect the levels of academic achievement in the discipline.

This study describes the attitudes toward statistics of 185 students from a particular campus of a private university in Puerto Rico located in the southern area, who took 1 of 4 introductory courses in statistics. Their attitudes were compiled using the Survey of Attitudes Toward Statistics (SATS).

Students showed positive attitudes for the affective, cognitive competence, value, interest and effort subscales, and negative attitudes for the difficulty subscale. When the attitudes were compared according to different demographic and academic characteristics, significant statistical differences were found for gender, grade point average, year of studies, final grade in the introductory statistics course, and the use of group projects, real data, scientific and graphing calculators. Finally, a logistic regression model was determined to explain the academic success in the statistics course. From this analysis it was found that the

following variables were related with attitudes: cognitive competence and value attitude subscales, and the use of data banks, real data and graphing calculator. Although all five variables in the model were statistically significant ($p < .05$), the two that were more decisive for the probability of academic success in the introductory statistics course were the use of real data and the cognitive competence attitude subscale.