

## An Evaluation of a First Year Introductory Statistics Course at a University in Jamaica

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**Abstract :** The evaluation sought to determine the factors associated with the high failure rate among students taking a first-year introductory statistics course. By utilizing Tyler's Objective Based Model, the main objectives were: to assess the effectiveness of the lecturer's teaching strategies; to determine the proportion of students who attends lectures and tutorials frequently and to determine the impact of infrequent attendance on performance; to determine how the assigned activities assisted in students understanding of the course content; to ascertain the possible issues being faced by students in understanding the course material and obtain possible solutions to the challenges and to determine whether the learning outcomes have been achieved based on an assessment of the second in-course examination. A quantitative survey research strategy was employed and the study population was students enrolled in semester one of the academic year 2015/2016. A convenience sampling approach was employed resulting in a sample of 98 students. Primary data was collected using self-administered questionnaires over a one-week period. Secondary data was obtained from the results of the second in-course examination. Data were entered and analyzed in SPSS version 22 and both univariate and bivariate analyses were conducted on the information obtained from the questionnaires. Univariate analyses provided description of the sample through means, standard deviations and percentages while bivariate analyses were done using Spearman's Rho correlation coefficient and Chi-square analyses. For secondary data, an item analysis was performed to obtain the reliability of the examination questions, difficulty index and discriminant index. The examination results also provided information on the weak areas of the students and highlighted the learning outcomes that were not achieved. Findings revealed that students were more likely to participate in lectures than tutorials and that attendance was high for both lectures and tutorials. There was a significant relationship between participation in lectures and performance on examination. However, a high proportion of students has been absent from three or more tutorials as well as lectures. A higher proportion of students indicated that they completed the assignments obtained from the lectures sometimes while they rarely completed tutorial worksheets. Students who were more likely to complete their assignments were significantly more likely to perform well on their examination. Additionally, students faced a number of challenges in understanding the course content and the topics of probability, binomial distribution and normal distribution were the most challenging. The item analysis also highlighted these topics as problem areas. Problems doing mathematics and application and analyses were their major challenges faced by students and most students indicated that some of the challenges could be alleviated if additional examples were worked in lectures and they were given more time to solve questions. Analysis of the examination results showed that a number of learning outcomes were not achieved for a number of topics. Based on the findings recommendations were made that suggested adjustments to grade allocations, delivery of lectures and methods of assessment.

**Keywords :** evaluation, item analysis, Tyler's objective based model, university statistics

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