TWO COURSE-WIDE ASSESSMENT TOOLS FOR INTRODUCTORY STATISTICS

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Stevenson University is a small private university located in the suburbs of Baltimore, MD. The Department of Mathematics and Physical Sciences currently offers three different courses in introductory, non-calculus-based statistics: Basic Statistics (for students in nursing, the social sciences, some business fields, and several other majors), Statistics and Probability (primarily for business students), and Statistical Methods (the most comprehensive of the courses, taken by students in the life and health sciences). While Statistical Methods has been taught by a single full-time faculty member ever since its inception, both Basic Statistics and Statistics and Probability are taught by a combination of full-time faculty and adjunct professors, with instruction taking place on Stevenson's two campuses in Stevenson and Owings Mills. The diversity of conditions under which students must take these two courses makes it imperative that some type of course-wide assessment tool be used. This report details the Department's experiences with the creation, development, two forms of assessment that all students must complete and all instructors must administer.

The type of assessment used in each course uses techniques and technology appropriate to the needs of the clientele. In Basic Statistics, where the emphasis is on the understanding of elementary statistical concepts and the backgrounds and interests of the students are extremely diverse, students are asked to gather data on two quantitative variables, measured on each of 30 individuals. The students are encouraged to choose variables relating to their majors or career interests and are asked to justify their variable choices. The students then "carry" their data sets through the course and analyze them using a variety of descriptive and inferential methods including binning and histogram construction, correlation and regression, and t procedures. In Statistics and Probability, by contrast, the students are given practice in the statistical applications of Microsoft Excel through a series of lab activities that cover both the standard types of descriptive and inferential analysis and such business-related topics as quality control.

Through a continuing cycle of feedback between course coordinators and instructors, these assessment tools have been refined on several different occasions and in several different ways. Student performance on the assignments has been reasonably consistent. The major difficulty that we have encountered – a difficulty that all course-wide assessment tools of this type will face during the development process – is in maintaining consistent grading standards across all course sections. Security is also an issue, as we must protect against students copying the earlier work of others. To that end, we are building a "library" of past Basic Statistics projects and are expanding the pool of lab activities from which we compile the Statistics and Probability manual each semester. We also require students to choose individuals from populations using random selection (either a table of random numbers or a random number generator on the calculator) and to detail how the random selection was performed.