Using Emerging Technologies to Decrease Anxiety and Improve Performance in a Doctoral Statistics Course

Abstract: It is well documented that statistics is one of the most stress producing courses most students take in graduate school. This project aims to break the tortuous cycle of lecture/lab in a doctoral level biostatistics class by proposing an innovative, technology rich approach to content delivery. Emerging technologies such as podcasts, vodcasts, screencasts, java-based applets, asynchronous discussions, blogs, webinars, and wikis will be used to give students more alternatives to learning and more control over their learning environment. The goal is to expand the learning environment beyond the physical boundaries of time and place, allowing learners to connect, collaborate, and create with other learners and the instructor, anywhere and anytime. This approach is designed to increase knowledge, application, understanding, and retention of the statistical content while decreasing the anxiety and negative attitudes towards statistics that may lead to poor performance.

It is well documented that statistics is one of the most stress producing courses most students take in graduate school. This project aimed to break the tortuous cycle of lecture/lab in a doctoral level biostatistics class by designing an innovative, technology rich approach to content delivery via the web. Emerging technologies such as podcasts, vodcasts, screencasts, java-based applets, asynchronous discussions, blogs, webinars, and wikis were used to give students more alternatives for learning and more control over their learning environment. By giving students the ability to pick and choose the learning methods and tools that most closely matched their learning preferences, as well as the time and location of most learning, it is hoped that there will be an increase in knowledge, application, understanding, and retention of the statistical content along with a decrease in the anxiety and negative attitudes towards statistics that may lead to poor performance.

This best practices presentation will describe the design, development, and creation of a web-based course in biostatistics for doctoral level students who will be pursuing careers in biomedical research. It will explain the strategies, methods and teamwork necessary to successfully implement the project along with the rationale for the instructional decisions made during the project. The goal of this presentation is to show the steps required to bring a course from outline to execution, highlighting the unique contributions of the many experts involved in its development. Though the content of this course was specific to Doctoral Level statistics, the processes involved are applicable to a plethora of science, math and/or research based courses that are not always so easily adapted to the e-learning environment or to student control of the learning experience. Giving students more control over learning, particularly in high-stress courses can be key to decreasing the anxiety and negative attitudes that may lead to poor performance.