DISCOVERY CHEMISTRY USING STATISTICS AND MINITAB
Patrick Keller, Castleton State College, USA; Abbess Rajia, Castleton State College, USA

Students entering general chemistry courses are weak in fundamental math skills and knowledge of statistics even though they have been exposed to basic concepts in statistics through their preparatory math courses. There is a difficulty in transferring knowledge of statistics to science courses and this is found throughout the K-16 curriculum. The problem is that students lack statistical knowledge in the context of applications in sciences. Discovery Chemistry Using Statistics and Minitab overcomes these difficulties through its integrated and inquiry based laboratory approach. Most importantly, the course shows how statistics is a fundamental part of the process of acquiring knowledge in chemistry. The discovery approach includes an inquiry based laboratory designed to stimulate students to think creatively about analyzing and modeling data that they generate through experimentation. This laboratory environment helps immerse the student in a learning process that is rich in technology, data analysis and fundamental explorations in statistics and chemistry. Students are presented with a series of laboratory experiences in which they are asked to design experiments, collect, analyze and model data to solve problems while working in small collaborative groups. Each student generates data sets from his/her experiment and these data sets are pooled together to form a data base that is used for class discussion and to explain concepts in statistics. This integrated approach stimulates interest in statistics and encourages students to take the risk to ask questions and get engaged in a discussion. This teaching approach moves statistics from a pure methods approach to one which is founded in applications.

THE DEVELOPMENT OF AN INDEX TO MEASURE SENSE OF LEARNING COMMUNITY IN COMPUTER SCIENCE
Robert Lucking, Old Dominion University, USA; Fred Rovai, Old Dominion University, USA; Dean Cristol, Old Dominion University, USA; Katherine King, Old Dominion University, USA

The purposes of this study were to develop, refine, and field test the Sense of Learning Community Index (SLCI), and to determine its validity and reliability for use with college students in traditional and distance education environments. The 40-item SLCI measures sense of learning community within a group of learners. The SLCI was field tested with university students in traditional and synchronous distance education courses. Data were collected from 135 students. Instrument reliability is very high (Cronbach's coefficient alpha = .97). The SLCI also exhibits high content validity covering the domains of collaborative learning, teamwork, shared goals, and active creation of knowledge and meaning. No evidence of differences in sense of learning community was found between traditional and distance learning courses and between content areas. However, differences were found between groups taught by different instructors. It was concluded that the SLCI is an effective measure of sense of learning community.

PROJECT LINKS: INTERACTIVE WEB-BASED MODULES FOR TEACHING MATHEMATICS AND ITS APPLICATIONS
Kenneth S. Manning, Ph.D., Rensselaer Polytechnic Institute, USA

Project Links at Rensselaer is a cooperative effort to develop materials linking mathematical topics with their applications in engineering and science. The product of this effort is a set of interactive, web-based learning modules that rely on hypertext, animations, and interactive Java applets. We employ interactive web-based modules in the studio classroom environment, pioneered at Rensselaer, to engage students in guided learning. The intent is to provide students with an experience unavailable in traditional lecture or textbook lessons. These modules are designed for use in more than one course, with a topic-qualified instructor and assistant available in the classroom during use. They are not intended as self-paced learning modules, nor as text replacements, but are to supplement existing courses with a degree of interactivity and universality not available before the advent of the World Wide Web. There are currently 47 modules in development. All modules will be available for examination.