

# STUDENT POSTER PRESENTATIONS AT CCSC:SCC 2000

## INTERACTIVE JAVA APPLETS FOR TEACHING STATISTICS

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Today, more than ever, mathematics is being taught either entirely or partially using web-based instructional material. For the past two years, web-based classes have been taught via the web. This has provided a wealth of research information on the strengths and weaknesses of web-based courses. Many students find this format an attractive alternative to a traditional course.

However, the instructional design of this course usually follows the traditional behaviorist (objectivist, teacher centered) instructional model. Its design does not take advantage of the computer's capability for constructivist (explorative) learning. This research explores the use of interactive Java applets as an instructional tool for constructivist learning.

## GIS IN PUBLIC TRANSPORTATION

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The Regional Transportation Authority (RTA) of Corpus Christi has contracted with Texas A&M University-Corpus Christi for the development of a Geographic Information System (GIS). The first stage of this development involved the establishment of an electronic base map that included arcs representing the streets of Nuences and San Patricio counties. Subsequent enhancements to the base map included the addition of street attributes, such as names and addresses ranges, to the underlying street database table. In addition, Global Positioning System (GPS) points at street intersections throughout the counties were collected and differentially corrected. The resulting points were used to perform "rubber sheeting" to the base map, shifting the corresponding street intersections to more geographically correct locations. GPS points of all bus stops were also collected and used to establish a bus stop inventory database table. The next step in the evolution of the GIS is to create route buffers to use with U.S. Census data. This data contains information on population density, income levels, number of vehicles owned per family, and commuting time to work that is useful for the planning of routes. This project has provided students with valuable practical experience in the field of GIS, and challenging research components such as analyzing the relationship between the attributes of the population and ridership.