

## A Simulation Information Management System for Use in Large Scale Simulation Centers

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The Simulation Information Management System (SIMS) developed at the Peter M. Winter Institute for Simulation, Education and Research (WISER) has allowed the institute to continue to operate at a high level of efficiency and effectiveness in spite of a significant increase in the number of classes and participants over the past academic year. SIMS integrates aspects of day to day operations, interactions with students and instructors, dissemination of course curriculum, and collection of course related information with research coordination and data handling.

Functionally SIMS is divided into three major systems including a Facility Management System (FMS), Learning Management System (LMS) and a Research and Data Management System (RDMS). The three systems are integrated into one operational infrastructure. This integrated system is available across the web and stores its data into a centralized Standard Query Language (SQL) database.

The FMS provides for the scheduling of rooms as well as the assignment of students and instructors into classes. Once individuals are assigned to a class they are automatically given access to course material, and via email, are prompted to complete assignments and reminded to report for their classes at WISER. Standard reports show student participation, instructor participation and category of participants based on their domain of practice, or practice location. Individual users of the system can print on-demand reports. For example to compile annual teaching summary activity reports, an instructor can create a report for time spent teaching along with access to the evaluations provided by the students.

The LMS hosts rich multimedia content, customized surveys, evaluations and quizzes. Users can create and manage their own accounts. Directors of each course can easily manage their course roster independent from WISER's administrative staff. The LMS also provides for significant instructor support and the ability to create on-line instructor curriculum, which helps to ensure that courses are taught in a uniform manner. Student progress and task completion is tracked and is available in real-time.

The RDMS stores the data from quizzes, surveys, evaluations, student's demographics as well as log files collected from simulation equipment during simulation sessions. It automatically de-identifies the data to facilitate research efforts. Data can be extracted from the relational database to generate quality assurance reports as well as exportation from SIMS directly to statistical software packages for research analysis. The multi-center ability of SIMS makes the system a natural catalyst for multi-center research projects.

Note that the Center Staff are the only full time employees of WISER. The other roles are all volunteer part-time positions.

### SIMS Class Process

**Roles**

- Center Staff
- Course Director
- Instructor
- Student
- Automated SIMS Process

**Facility Management System**

- Add Class
- Request Class
- Add People To Class
- Sign up For Class
- Automated Email Reminders To Students and Instructors

**Learning Management System**

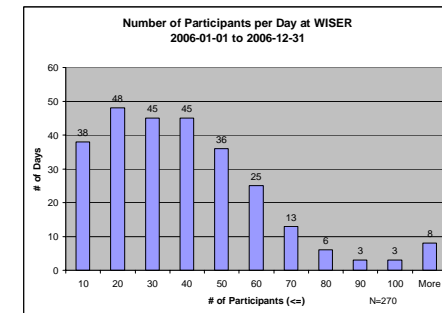
- Check student progress
- Review material
- Review Material
- Complete Quiz
- Complete Survey
- Attend Class at Center
- Automated Email Reminders To Students

**Research & Data Management System**

- Run Post Class Reports
- Generate Research Data
- Review Evaluations
- Complete Evaluations
- Automated Reminders To Students

SIMS has allowed WISER to grow efficiently in the past year. Over the last academic year the number of students has increased by 31% without a significant increase in administrative staffing. SIMS allows the end users to manage their educational objectives and data with minimal oversight and support of the WISER staff. Finally, as a central repository of nearly all data collected at WISER, it is a significant resource for many research projects.



**WISER Statistics**  
**2005-2006 Academic Year**  
 (with % increase from the previous year)

- Total Number of Classes **1,167 (+16%)**
- Average Class Length in Hours **3.72 (+12%)**
- Total Number of Educational Encounters **9,546 (+19%)**
- Total Number of Individual Participants **2,723 (+31%)**
- Total Number of Instructors **165 (+12%)**
- Total # of Participant Hours **39,574 (+18%)**