Project Year
2013-2014

Project Title
Placement Examination Design and Implementation in the Blackboard Course Management Environment

Project Team
Richard Brown, Krieger School of Arts & Sciences, Mathematics, Faculty
John Ross, Krieger School of Arts & Sciences, Mathematics, Fellow

Audience
(1) All incoming freshmen, to take the Math Placement Exam;
(2) All advising staff in KSAS and WSE (with a need to know) having direct and full access to Placement Exam results;
(3) The ISIS system, allowing Placement Exam results to be hardwired into the prerequisite data for mathematics courses.

Pedagogical Challenge
The challenge is to design and implement an effective mathematics Placement Exam for incoming freshmen that is fully integrated into the Hopkins advising and registration community and that is pedagogically sound and effective. The current implementation of the Mathematics Department's Placement Exams – a stand-alone series of html-controlled PDF files on a dedicated Mathematics Department server–content cannot easily be edited or updated. It is difficult to share results with advisors from KSAS and WSE and the results cannot be used in an automated fashion to allow or deny access to current mathematics classes at registration or within ISIS. Currently, the placement exams are online, multiple choice exams offered during the summer. However, as implemented, they are lack proper security befitting a distributed university exam, and are not integrated at all with relevant parties across the university that need or use the results.

Solution
We propose to remedy these problems through a full redesign and reimplementation in the Blackboard Organization environment. We will migrate the Mathematics Department Placement Exams from the stand-alone series of html-controlled PDF files on a dedicated Mathematics Department server to a fully integrated Blackboard Organization for use by all incoming freshmen as part of their initial orientation into the Hopkins Community. Incoming students can join the Blackboard Organization and take the placement exam(s) using security safeguards inherent to Blackboard. Scores would be recorded and access to those scores can be granted to any University official with need and Blackboard accessibility.

Faculty Statement
Our team will redesign and migrate the Mathematics Department Placement Exams to a fully integrated Blackboard Organization for use by all incoming freshmen as part of their initial orientation into the Hopkins Community. The two current placement exams (one to assess readiness for calculus, the other to evaluate the proper level of calculus) are vital tools for evaluating an incoming student's background and mathematical maturity outside of application data such as high school courses taken, grades achieved, and AP or IB standing. These online, multiple choice exams are offered during a single, timed window of the student's choice during the summer. However, in their current implementation, they are

poorly designed for editing and updating, lack proper security befitting a distributed university exam, and are not integrated at all with relevant parties across the university that need and/or use the results.

Incoming students can join and take the placement exams directly in the Blackboard Organization. Recorded scores can be accessed by any university official with need. Exam features in Blackboard, like randomizing questions, creating exams using question banks, timed environments, as well as individual student access to results, are all desirable features not available in the current environment. As well, the current participation rate is low (65%), there is no automated means to regulate course registration using the results, and advisor access to the results is limited.

We see an immediate benefit in the following ways: 1) Admissions and advising can direct incoming students directly through Blackboard to this exam; 2) Advising offices in KSAS and WSE will automatically have results immediately for use; 3) The security of the exam environment will be handled directly by Blackboard; 4) The exam's robustness will be increased via problem banks, randomized answers, and easy editing; (5) Results can be used immediately by ISIS to permit or withhold access to courses.

Once completed, the maintenance of the exam will be relegated to the DUS and the IT manager of the Mathematics Department. Maintenance will consist of editing and updating the exam content as needed and, potentially, reformatting questions based on feedback.