

Unit Level Effectiveness Assessment Documentation (U-LEAD)

Mathematics Assessment Plan for 2006

Objective

To improve the basic arithmetic skills of MATD 0330 (Basic Math Skills) students who are found to be so severely deficient in those skills that they are highly unlikely to be successful in that course.

Reference

Student learning objective

Intended Outcome

Basic arithmetic skills are reviewed during the first four weeks of Basic Math Skills (MATD 0330). However, some students who enroll in that course are so deficient in those basic arithmetic skills that they are unable to master them during the four week review and thus find themselves hopelessly lost for the remainder of the course. (Basic Math Skills is our lowest level math course, so there is no lower course that we can refer them to.) Our plan is to use a Basic Arithmetic Skills Test at the end of the four week arithmetic review to identify the severely deficient students and to offer them the opportunity to move to an Arithmetic Lab, which they will attend for the remainder of the semester in lieu of attending the Basic Math Skills course. By attending and participating in the Arithmetic Lab, these students will improve their basic arithmetic skills.

Standard

At the end of the semester, students who regularly attend and participate in the Arithmetic Lab Course will improve their scores on an alternate form of the Basic Arithmetic Skills Test by an average of 4 points (out of a possible 16 points).

Method

All students enrolled in conventional classroom sections of Basic Math Skills (MATD 0330) in the Fall 2005 16 weeks session will be given a Basic Arithmetic Skills Test at the end of the four week arithmetic review that begins the course. The test has a maximum score of 16 points and will be graded according to a standard rubric which allows for partial credit. Students scoring 12 or more points will be told to stay in the Basic Math Skills Course. Students scoring between 8 and 11.5 points will be told they should consider the option of switching to the Arithmetic Lab. Students scoring 7.5 points or less will be told they should take the option of switching to the Arithmetic Lab. In no case will students be forced to switch to the Arithmetic Lab. The Arithmetic Lab will meet two hours per week for the remaining 12 weeks of the 16 weeks session. Students who attend and participate regularly will be given a grade of IP (In Progress) for Basic Math Skills. At the end of the 12 week period, students in the Arithmetic Lab will be given an alternate version of the Basic Arithmetic Skills Test. For those students who regularly attended and participated in the Arithmetic Lab, the average change in score will be calculated.

Results

Fifty-eight of the students identified as needing the Arithmetic Lab agreed to attend the lab. Some of the 58 never attended the lab, some of them did attend for a while but stopped coming, and some who attended throughout the 12 weeks of the lab were absent the day the posttest was given. At

least one lab instructor failed to give the posttest. Thus, only 18 students in the lab actually took the posttest. Of those, four had not taken the original assessment so there is no comparison data for them. This nets only 14 students who took the original assessment, attended the lab, and then took the posttest. Eight of the 14 made a gain of 4 or more points, with an average increase of about 7.8 points. Six of the 12 made a gain of less than 4 points, with an average increase of about 1.8 points. The average gain for all 14 students was about 5.2 points. Although the sample is too small to be conclusive, this result technically exceeds the standard set for the lab.

Improvement Actions

ACC has six main campuses and having only six sections of the Arithmetic Lab made it inconvenient or impossible (due to work and other class conflicts) for some students who might have benefited from being able to attend the lab. In Fall 2006, 12 or 13 sections of the lab will be scheduled.

In the future, the labs will meet four hours per week instead of two hours per week, which was the case in Fall 2005.

Students need to be given more convincing evidence of the benefit of the Arithmetic Lab. A study is being conducted in Spring 2006 and the results will be used beginning Fall 2006 to show students how strongly indicative of their success or failure in MATD 0330 the Basic Arithmetic Skills Test is.

An "Arithmetic Lab Folder" has been put together to better inform the Arithmetic Lab instructors of their responsibilities and to facilitate their efforts. The folder's contents include background information about the labs, information about the arithmetic assessment instrument, a student survey, an informational handout for students, and an informal transfer form. Of particular note in the folder is a "Student Declaration and Tracking Form." On this form, a student who has scored poorly on the Basic Arithmetic Skills Test but has refused to make an informal transfer to an Arithmetic Lab section is required to acknowledge that his/her instructor has recommended the move. Further, the student must provide reasons for not making the move.

Beginning Fall 2006, teachers of both MATD 0330 and the Arithmetic Labs will be made more aware of the importance of collecting both pretest and posttest data on as many of the students as possible. This will be done by including updated information regarding the Basic Arithmetic Skills Test and the Arithmetic Lab in the Math Manual, which is given to all math faculty, and by disseminating the information in course specific discussion group, which are held at the beginning of the Fall 2006 semester.

Further studies will be done to see how students who complete the Arithmetic Lab and then take MATD 0330 perform relative to students who stayed in MATD 0330, failed it, and then repeat MATD 0330. The results will indicate whether the Arithmetic Lab sections merit their additional cost and bother.

Annual Assessment Summary Report

Strengths

The quality of the Mathematics Department faculty is extremely strong.

The Mathematics Department demonstrates concern about student learning outcomes.

The Mathematics Department is creative and flexible in devising instructional approaches to improve student learning outcomes.

The Mathematics Department recognized that some especially under prepared students needed more time and attention to spend on arithmetic skills and took action to address the issue.

Austin Community College is interested in appropriately serving students academic needs and in innovation in instructional approaches.

Weaknesses

There is a lack of sufficient college support for faculty and developers involved in innovative processes to have the time for planning, curriculum development, and implementing innovative instructional approaches.

Students who scored low on the Basic Arithmetic Skills Test needed to be given stronger encouragement and more motivation to make the informal transfer to an Arithmetic Lab.

Better procedures are needed for tracking students who transfer to the Arithmetic Labs.

Better communication is needed for instructors, students and advisors in regard to the the Arithmetic Lab program and procedures.

Improvements

The initial Pilot Arithmetic Labs met for only two hours each week in the fall '05, but were changed to meet four hours weekly in the spring '06.

The number of sections of the Arithmetic Lab is being doubled for Fall 2006.

Students who score low on the Basic Math Skills Test but refuse to make the informal transfer to the Arithmetic Lab will be asked to sign a form in which they acknowledge they were informed of the lab and its benefits and in which they assume responsibility for their decisions.

More complete procedures and related forms (including tracking forms) for Basic Math Skills and Arithmetic Lab instructors have been written.

Course-specific faculty development workshops will be held at the beginning of the Fall 2006 semester to better inform Basic Math Skills and Arithmetic Lab instructors of procedures and related forms.

Data analysis will be done to assess the effectiveness of the Arithmetic Labs and to refine the placement of students into the labs.

Accomplishments

Arithmetic Labs were offered for underprepared students and improvements were implemented for the Spring 06 semester.

Data is being collected and analyzed to improve the Arithmetic Labs and to improve participation by students who will benefit from the labs.

The accomplishments of the improvements will be evaluated based on the results of their implementation in Fall 2006.

Challenges

The Mathematics Department will need to make sure that increasing the size of Basic Math Skills sections (which will be done for Fall 06) does not diminish their effectiveness.

The Mathematics Department will need to continue to find ways to persuade under-prepared students that the Arithmetic Lab is the most appropriate and efficient choice for their academic success--short and long term.