

**ALAMO COMMUNITY COLLEGES OF
THE ALAMO COMMUNITY COLLEGE DISTRICT**

**San Antonio College, St. Philip's College, Palo Alto College,
Northwest Vista College, Northeast Lakeview College**

**Accelerated Developmental Math and College Algebra Redesign Course
Colleagues Committed to Redesign (C²R) Proposal**

What impact would redesigning the course have on the curriculum, on students and on the institution—i.e., why do you want to redesign this course?

The redesign of an accelerated math course that combines developmental math and college algebra for non-STEM (Science-Technology-Engineering-Mathematics) majors will greatly impact the Alamo Community colleges—the curriculum in math, and eventually other introductory core courses, and thus learning and success for all ACCD students.

Mathematics, both developmental and college algebra, is a gatekeeper for all the Alamo Community colleges' students. A look at “success” (grade of A-B-C) in the courses shows evidence of the significant need to improve course results. With four developmental math levels required to enter college algebra, many students spend several semesters getting to college algebra, even if they are successful in the developmental sequence.

- In the fall 2005 semester, 9,198 students enrolled in their first math class at an ACCD college and 83.1% of those were in a developmental course.
- During the 2004-2005 academic year, 49.3% of the 8,272 students enrolled in the highest developmental level, MATH 0303, successfully completed the course.
- During the 2005-2006 academic year, 8,005 students enrolled in College Algebra, MATH 1314. The successful grade rate was 52.6% with the range across the colleges from 38% to 74%, which is typical over the last three academic years.
- During the fall 2004 and spring 2005 semesters, only approximately 38% of the students repeating College Algebra were successful.

Analysis also confirmed gaps across ethnicity in success and retention.

- In fall 2005, 45% of ACCD students were first generation college students, 59% were minority students, and 61% were economically disadvantaged.
- Fall-to-fall persistence for those entering the colleges in fall 2004 was 44% while the national community college fall-to-fall persistence norm was 50%. Further analysis of data reveals that most students are not taking additional upper level math courses; 8% of students taking a first math course are enrolling in a course that requires college algebra as a prerequisite.

It is evident to the faculty in the Alamo Community Colleges and the administrative leadership that something must be done to improve these results. Several motivators have led to this decision to begin the colleges' redesign effort with this math course at this time.

The four, soon to be five, colleges of the Alamo Community College District are one of the original cohort of the Achieving the Dream initiative. As a single participant in the initiative, the colleges began three years ago to analyze student results of various programs and services. With a focus on using data to identify gaps in student success and increase learning outcomes for all students, and particularly to help minority students and low income students, the colleges quickly confirmed that developmental educational and gatekeeper courses needed specific interventions. In addition, data analysis also revealed the significance of helping the new college student be successful in the first 15 hours of attempted course work so he/she will continue in future semesters. Several strategies were initiated and others were revised or enhanced to increase retention and success. However, more significant changes are necessary to significantly improve results, and the administrative leadership and faculty at the colleges have been discussing course redesign as an initiative to affect many students—one introductory course at a time.

The Texas Higher Education Coordinating Board (THECB), partly in response to House Bill 1 passed by the Texas Legislature in 2006 that specifically addresses course redesign, is in discussions with Carol Twigg and NCAT about utilizing the redesign model across the State of Texas. While the Achieving the Dream focus has created a structure for discussions across the college and led to the identification of the college algebra course as the initial redesign course, the THECB has invited the ACCD colleges to partner with other community colleges (Houston Community College and North Harris Montgomery Community College District) to redesign courses in developmental education and “gatekeeper” courses as a model in the state. With the substantial numbers of students enrolling in math in the colleges and the evidence of a need to increase the results, the colleges have committed to starting with this course for its redesign focus.

What is the level of departmental support for the redesign project?

The math faculties at the five colleges are committed to a redesign of an accelerated developmental math and college algebra course for non-STEM majors. They have been in discussions about learning outcomes, curriculum alignment, and results as part of the Achieving the Dream activities during the last two years. Each college has piloted accelerated math courses, either combining developmental levels or a developmental level with college algebra. These pilots have been initiated by one or two faculty. Each college has also discussed the difference in learning outcomes required for science/math majors and the outcomes for those students who are completing a core math requirement. A majority of students are taking college algebra to fulfill a general education core requirement. These discussions have led to a decision to develop separate courses. Tentatively, the cross-college team believes that the outcomes of MATH 0302, the third

of the four developmental levels, will be sufficient for the non-STEM college algebra course, which will reduce the number of courses required for those testing into the lowest levels.

Through the cross-college discussions and interventions piloted at the colleges over the last year, it is evident to the faculty that teaching/learning strategies must be changed as well as the curriculum. The colleges recognize active learning's impact on student learning and are increasingly incorporating strategies into the classroom. The colleges are adding the time on task by expanding lab time in developmental courses and adding on-going lab support to provide additional help for students. The time is right to bring these individual strategies and expertise together in a redesign model. Faculty have met and identified a team of two faculty from each college (a total of 10) which will meet regularly during the spring semester to develop a course combining developmental math outcomes and college algebra for non-science majors that will be offered at each college in fall 2007.

Are the participating faculty members able and willing to incorporate existing curricular materials in order to focus work on redesign issues rather than materials creation?

Yes, as evidenced by their continuing efforts to improve the math courses at the colleges. Incorporating technology into teaching strategies is not a new effort for any of the colleges. They have been developing materials for several years and among the five math departments, three software programs are in use, Academic systems, My Math Lab, and Smarthinking. Extensive lab materials have been developed by each college and the team is definitely willing to collaborate on selecting a software package to use in the redesign and utilizing existing materials to address the learning outcomes identified for the course.

Have the course's expected learning outcomes and a system for measuring their achievement been identified?

The cross-college team has begun meeting in January, 2007, to identify learning outcomes for the course and to inventory the resources and materials available across the colleges. The outcomes will be developed within the parameters of the exit competencies of high school math requirements and the exemplary education objectives identified by the THECB for the math component of the core curriculum. All of the team members are full time faculty with experience in both developmental math and college algebra. The team will identify the system for measuring achievement of the outcomes during the development process.

Tom Bailey, from the Teachers College of Columbia, is a partner in the THECB efforts to support community colleges' redesign efforts. Tom is also a leader in Achieving the

Dream's evaluation efforts. The team will be working with him on the evaluation plan for the redesign implementation.

Do the course faculty members have an understanding of and some experience with integrating elements of computer-based instruction into existing courses to support active learning?

The faculty selected to serve on the cross-college redesign team have all used technology in teaching math at the colleges. Each college offers distance learning classes and has a professional development program for faculty who are integrating technology into curriculum and teaching distance learning. Technology is utilized at all the colleges in math labs, using a variety of commercial software and materials developed in the college. While the strategies for utilizing technology vary at each of the colleges, the team is interested in redesigning the course, using the NCAT model, and using technology to close the achievement gap for underserved students and create equal opportunities for success for all students.

Does your institution have a mature information technology (IT) organization(s) to support faculty integration of technology into courses? Or do you contract with external providers to provide such support?

The Alamo Community College District has a mature IT organization with technical support at the district level and at each college. A strategy in the ACCD District strategic plan is “to provide and utilize modern technology to support learning, increase administrative efficiency and effectiveness, and streamline information processes,” and each college has similar strategies in its strategic plan. The district and each college have line items in operating budgets to support IT requirements and replacement plans. Capital improvement projects across the colleges, approved by taxpayers in the last year, include \$17.5 million specifically for district-wide IT expansion as well as embedded infrastructure dollars for each of the individual new buildings.

Each college has an instructional technology and innovation center, with dedicated staff, that offers development courses and individual support for technology. All the colleges have the infrastructure to support use of technology in classes, extensive numbers of computer labs, and every full time faculty member has a networked computer on his/her desk.

Students have access to computers throughout the week and on Saturdays, day and evenings. Systems are in place for all students, upon admission to the colleges, to receive an ACCD email address, and many instructors currently communicate with students in this manner. Help lines are available for students as well as faculty to request technical support.

Is your institution committed to providing the support needed for the redesign project?

In response to the colleges' participation in Achieving the Dream, the Board of Trustees has designated district-level funds to support improvement of student success. A District Director of Achieving the Dream, a former chief academic officer at one of the colleges, is charged with working with disciplines across the colleges and creating opportunities for faculty to collaborate on curriculum and teaching/learning strategies.

Each of the ten faculty members in the math cross-college redesign team will be on a course release for the spring semester and the chair of the team, a San Antonio College math faculty member, has an additional course release to coordinate the team's work. If additional time is required to complete the redesign, additional time will be approved for the first summer session. The chief academic officers at each of the colleges are supporting the project and have committed to providing any support required at the college level.

The partnership with the THECB for the spring will move forward in order to have the course ready for piloting at each college in the 2007 fall semester. As the fall 2007 schedule is developed, sections will be established for the redesigned course at each college. While the accelerated math course is the first identified for redesign using the NCAT model, the intent is to expand redesign to other introductory courses combined with developmental disciplines.

Is your campus committed to a partnership among faculty, IT staff and administrators in both planning and execution of the redesign?

The decision to use the NCAT redesign model, initially for an accelerated developmental math and college algebra course for non-STEM majors, has resulted from the top down and bottom up. Discussions have been ongoing since June, 2005, to improve student learning and outcomes, particularly in the introductory courses that first time in college students attempt during the first year; math is the number one discipline with the highest enrollment.

Through the Achieving the Dream initiative, the District Director for Achieving the Dream will serve as the contact for the redesign project, meeting regularly with the cross-college team and providing on-going updates to the chief academic officers. The Board of Trustees, Chancellor, and college presidents are committed to making the ACCD a "best place" to learn and work. The colleges' leadership has refocused for 2007 on improving retention and success for all students, particularly students of color and low income students. One of the five objectives of the strategic plan is "student success" and the colleges are all focusing on improving student learning, success, and retention.

Following the initiation of the pilot offerings of the math course in the fall and spring semester, an analysis of the results will guide the expansion of the course for fall, 2008. Other introductory course redesigns will be started in fall, 2007 in order to increase student outcomes in other general education areas.