National Center for Academic Transformation (NCAT)
Seminal Program in Course Redesign

In the seminal Program in Course Redesign, 30 institutions were selected to participate from among hundreds of applicants in a national competition. Each institution redesigned one large-enrollment course to increase quality while simultaneously reducing instructional costs through the use of technology. Those 30 institutions represented research universities, comprehensive universities, private colleges, and community colleges in all regions of the United States.

The first redesign projects focused on large-enrollment, introductory courses. As an initial target, those kinds of courses have the potential of generating significant cost savings and of having significant impact on student success.

Studies have shown that undergraduate enrollments in the United States are highly concentrated in introductory courses. On average, nationally, at the baccalaureate level, the 25 largest courses generate about 35% of student enrollment. At the community college level, the 25 largest courses generate about 50% of enrollment. In addition, successful completion of those courses is key to student progress toward a degree. High failure rates in those courses—typically 15% at research universities, 30 to 40% at comprehensives, and 50 to 60% at community colleges—can lead to high dropout rates in the first and second years of enrollment.

NCAT required each of the 30 institutions participating in the Program in Course Redesign to conduct a rigorous evaluation of learning outcomes as measured by student performance and achievement. National assessment experts provided consultation and oversight regarding those assessments so as to maximize validity and reliability.

The findings of the Program in Course Redesign were that:

- Of the 30 redesigns, 25 improved learning; the remaining 5 showed learning outcomes equivalent to traditional formats.
- Of the 24 projects that measured retention, 18 resulted in reductions in drop-failure-withdrawal rates.
- All 30 projects reduced the cost of instruction—by 37% on average, with a range of 15 to 77%.

Other outcomes achieved included improved student attitudes toward the subject matter and increased student and faculty satisfaction with the mode of instruction.
While each of the 30 institutions participating in the Program in Course Redesign had complete freedom regarding how to redesign courses to increase quality and reduce costs, a number of common elements emerged.

- *Whole-Course Redesign*. In each case, the whole course—rather than a single class or section—is redesigned. Faculty members begin by analyzing the amount of time each person involved in the course spends on each kind of activity. Such

an analysis often reveals duplication of effort. By sharing responsibility for both course development and course delivery, faculty members save substantial time and achieve greater course consistency.

- *Active Learning*. All of the redesign projects make the teaching-learning enterprise significantly more active and learner centered. Lectures are replaced with a variety of learning resources that move students from a passive, note-taking role to active learning. As one math professor put it, “Students learn math by doing math, not by listening to someone talk about doing math.”

- *Computer-Based Learning Resources*. Instructional software and other web-based learning resources have important roles in engaging students with course content. Resources include tutorials, exercises, and low-stakes quizzes that provide frequent practice, feedback, and reinforcement of course concepts.

- *Mastery Learning*. The redesign projects offer students more flexibility, but the redesigned courses are not self-paced. Student pace and progress are organized by the need to master specific learning objectives—often in a modular format and according to scheduled milestones for completion—rather than by class meeting times.

- *On-Demand Help*. An expanded support system enables students to receive assistance from a variety of people. Helping students feel they are part of a learning community is critical to their persistence, learning, and satisfaction. Many projects replace lecture time with individual and small-group activities that meet either (1) in computer labs staffed by faculty, graduate teaching assistants, and/or peer tutors or (2) online, thus providing students more one-on-one assistance.

- *Alternative Staffing*. Various instructional personnel in addition to highly trained, expert faculty constitute students’ support system. Not all tasks associated with a course require a faculty member’s time. By replacing expensive labor (faculty and graduate students) with relatively inexpensive labor (undergraduate peer mentors and course assistants) when appropriate, projects increase the number of hours during which students can access help, and they free faculty to concentrate on academic rather than logistical tasks.

Further information about NCAT and its course redesign programs is available at http://www.theNCAT.org.