

**Is NCAT Redesign
Compatible with
AMATYC Standards?**

Does it work?

Yes!

Beyond Crossroads (a little review!)

- Our guide to excellence in mathematics education
- “a starting point for dialogue, reflection, experimentation, evaluation, and continuous improvement”
- Take the standards for intellectual development, content, and pedagogy from Crossroads in Mathematics and now focus on the implementation

Beyond Crossroads (a little review!)

- Basic principles underlying Beyond Crossroads: assessment, broadening, equity and access, innovation, inquiry, quantitative literacy, relevance, research, and technology
- Guiding Principle: Embracing Change!
- Provides five implementation standards to achieve educational excellence

Framework and the Big Problem:

- Beyond Crossroads points us towards continual improvement and provides a framework to explore positive, beneficial changes
- Exploring change is necessary because student success is not where we want it to be
- Change is hard

How bad was it?

- Focus on our Intermediate Algebra (1033) class:
 - 97% of our incoming first time in college AA seeking students place into 1033 or below (not college math credit)
 - Success rates in 1033 were about 50% each semester
 - Only 34% of students were graduating in three years after taking 1033
- So began the process of researching options....

NCAT and AMATYC

- Both strive for excellence in education
- Both require ongoing review and adjustment
- Both give suggestions for how to improve what we do to help our students learn

What is NCAT?

- National Center for Academic Transformation
- <http://www.thencat.org>
- NCAT: an organization to help schools apply technology to improve learning outcomes in proven ways
- NCAT provides delivery models for schools to use with their own curriculum

NCAT Principles:

1. Redesign the whole course
2. Encourage active learning
3. Provide students with individualized assistance
4. Build in ongoing assessment and prompt (automated) feedback.
5. Ensure sufficient time on task and monitor student progress

NCAT & Mathematics

- Recommended redesign: emporium model (VA Tech)
- Santa Fe's approach: modified emporium model

A Modified Emporium?

- Keep a class component
- Provide structure with some flexibility
- Enforce concepts through written work

Class Component: the Focus Group

- Goals: to fosters relationships and provide a framework of material to be learned for the week
- Must be approached differently than a regular class
- This part was our most challenging

Structure

- Weekly deadlines
- Scheduled lab times
- Clear policies

Written work: the notebook

- Team created
- A place to emphasize vocabulary and concepts, as well as see written steps
- Developed in response to faculty concerns about entering work on a computer

Nuts and Bolts: work

- 2 homework and 2 quizzes due each week
- Multiple attempts allowed to encourage excellence and reduce anxiety
- 3 tests and one final during the semester
- Tests must be passed with a 70% or better; everyone gets 2 tries per test; gateways provided for those who do not pass to demand proficiency

Nuts and Bolts: grades

- 65% proctored material (tests and final)
- 10% homework average
- 10% quiz average
- 15% attendance and notebook work

Potential Issues

- Getting started:
 - persuading enough faculty that the system works
 - getting administrative support
- Getting going:
 - Convincing students how to take advantage of new resources
 - Training faculty in how to approach the class differently

Benefits

- More interaction with students
- Students get more work done
- Faculty have less grading to do

In their own words

Results:

- Compared results on the common final exam in the cohort groups (same instructors):
- In Fall 2009 (first pilot), the Studio average was 6% higher; 78% of Studio students passed versus 59% of traditional students
- In Spring 2010 (second semester), the studio average was 11% higher; 72% of studio students passed versus 47%

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