

# RESEARCH and PRACTICE

March 2013

*Produced by the office of Institutional Research & Assessment.*



## Takeaways

- The Gateway Course Academy was created to help facilitate course-level improvement.
- The Academy was modeled on the Faculty Inquiry research method developed by the Carnegie Foundation for the Advancement of Teaching.
- Six courses were identified to be part of the pilot group.
- Faculty analyzed their course research in order to make adjustments to the course or argue for division-wide policy review.

## The Gateway Course Academy: A Review

The goal of the Gateway Course Academy is to provide faculty with the necessary support to develop, implement, and evaluate improvements at the course-level for identified gateway courses.

One of the main reasons for the establishment of the Academy was driven by our Student Success Initiative's' (SSI) in analyzing highly enrolled courses with low success rates. Another impetus of the Academy came from an identified need for faculty to have the time and support necessary to fully explore why students in their gateway courses were not being successful and to develop and implement strategies for improvement. Within the Academy, faculty work in a cross-disciplinary team over two semesters to 1) identify research questions about student learning specific to their respective gateway course; 2) design a plan for gathering evidence to support their research design; and 3) identify, implement, and evaluate a strategy for improvement. The Academy was modeled on the Faculty Inquiry research method developed by the Carnegie Foundation for the Advancement of Teaching.

In addition to conducting course-based research, faculty also explore broader issues of student motivation, college readiness, and faculty development. A team of Academy consultants are assigned to the team, including an instructional designer, information literacy specialist, skills instructor, and academic research specialist. Financial support is also available to bring in outside experts or for conferences.

The Academy began in fall 2011 as a pilot with six faculty, each serving as the champion for one of the following gateway courses: ECO 121 Macroeconomics, MAT 011 Beginning Algebra, CJS 100 Introduction to Criminal Justice, EDU 100 Introduction to Education, HIS 205 History of the United States from 1877, and ENG 011 Basic Writing 2. Faculty completed the first part of their research projects in fall 2011 and implemented and evaluated the identified strategies for improvement in spring 2012.

What follows are two examples of the six projects that were conducted by faculty as being part of the Gateway Course Academy. Each faculty member took the lead in developing, researching, and presenting their findings to their colleagues.

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## Faculty Research Projects

### *Economics 121*

For this course, faculty identified that 1) students had problems applying theory to real problems and 2) they also had a “Swiss cheese” knowledge of the subject. In order to increase student success in ECO 121, an integrated on-line homework system called “Connect” was piloted in five seated sections. The program provides students with opportunity for increased practice in the application of macroeconomic theory with instant feedback.

The pilot took place in fall 2011 and initial feedback from students was positive. Many students commented that graded homework and electronic flashcards “forced” them to read the text and gain a deeper understanding of the vocabulary and concepts.

Pilot course student success data indicated a modest increase in success in both fall 2011 and in spring 2012. Part-time faculty began to use the software in spring 2012.

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### *MATH 011*

The math faculty member, in response to a release of CCSSE data, decided that students were not successful because they did not do their homework. The hypothesis was that students do not complete homework because it is not a high-stakes activity. To prove this the faculty member did a study on test scores in classes with graded and non-graded homework.

This faculty member attempted to prove his hypothesis by setting up an experiment: compare students who did homework and those that did not to discern if homework made a difference in student success.

The faculty member requested homework, and test score data, from all MAT 011 instructors. While not all instructors replied to the request, there was a large enough amount of data provided to perform testing.

First, it was decided to segment the data into students whose homework was collected and graded, and those students which did not have graded assignments. Overall, two groups were created (each group had two sub groups: one with graded assignments and one which did not have graded assignments).

For the first test (Group 1) a total of 127 students had homework assigned and collected, while 100 did not

have homework assigned. A replication of the study was performed to confirm the hypotheses.

For Group 2, the number of students who completed homework was 126, while the total number who did not have any homework assigned was 103 (see Table 1 below).

The hypothesis suggested the following: Those that did complete their homework would do better on their tests.

Table 1	Homework Assigned	No Homework Assigned
	Average Test Score	Average Test Score
Group 1	79.95	72.06
Group 2	78.00	64.75

The p-values were small for both groups ( $p = .0025$  for Group 1 and  $p = .0000077$  for Group 2). Therefore there were significant differences in the average scores across both groups.

So what does this evidence suggest? The results seem to indicate that faculty who assigns, collects, and grades homework have students who score better on the test. This may have suggested that the department should recommend ALL MAT 011 instructors assign, collect and grade homework assignments.

### **Next Steps for the Gateway Course Academy**

Reviewing the two aforementioned courses, overall, the success rates in MAT 011 have held steady the last three fall semesters; in the low 50% range. There has been a slight increase in the success rates of students in ECO 121 from 66% in fall 2010 to 69% in fall 2012.

Several new Gateway Course Academies are slated to begin in September 2013. Training will occur for faculty of the next Academies (ENG 101, ENG 102, MAT 100, MAT 106, HIS 101, HIS 102 & CIS 110) this semester in preparation for fall research and inquiry, as well as new academies which will be selected in fall 2013. If you are interested in learning more about the work of the faculty in the pilot academy, including the projects conducted by Mr. Stephen Schmitz (CJS 100), Ms. Monica D’Antonio (ENG 011); Dr. Cathy Hoult Shewring (HIS 205), Ms. Elizabeth Lattanzi (EDU 100), Mr. Mark McFadden (MAT 011), and Dr. Lee Bender (ECO 121), please contact Dr. Joan Brookshire at [jbrooksh@mc3.edu](mailto:jbrooksh@mc3.edu).

