Successful Completion of STEM Gateway Courses at Onondaga Community College

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A blueprint for the next generation of innovators...

Overview

- Program Structure and Focus
  - STEM Gateway Courses
  - Overall Program Structure
  - Support Services
- Student Recruitment and Selection
- Student Outcomes
- Program Assessment
- Conclusions and Recommendations

Program Structure and Focus
STEM Gateway Courses

- STEM gateway courses are foundation courses at the freshman/sophomore level:
  - Anatomy and Physiology
  - Biology
  - **Chemistry**
  - Physics
  - **Mathematics**: Pre-calculus, **Calculus** and Statistics
  - Computer Science/Information Technology

Program Structure
Overall Program Structure

Support Services

- Tuition
- Textbooks
- Counseling
- Academic Coaching
- Special Events
- Wellness Sessions
- Lunch
- Study Areas

Tutoring

- Recitation
- Small Groups
- Individual

STEM Coursework

- Calculus I
- Chemistry I with lab

Program Structure and Focus
Support Services

Key elements fostering a culture of disciplined learning

- **Academic Coach**
  - Mentors including providing organizational tools for each individual to help with time management, stress and study skills
  - Intervenes, intervenes, intrudes
- **Counselor**
  - Mentors
  - Facilitates academic plan (from current location to four-year institution)
- **Tutors**
  - Knowledgeable , supportive of instructor, supports instructors development of additional assignments based on assessments
- **Study Areas**
  - Computer labs (reserved specifically for a course cohort), dedicated classroom, CSTEP/LSAMP Office

Student Recruitment and Selection

All 24 applicants were invited to participate

Students surveyed to identify STEM gateway courses to offer

Students applied: application requests an essay outlining why we should invite the student to participate in the program

Selected students are interviewed by the CSTEP/LSAMP counselors

Selected students are invited to participate in the program

Students accepting the offer to participate in the program are invited to come in and sign their contract

In 2015, 24 students applied

All 24 students completed the program

Student Recruitment and Selection

- CSTEP/LSAMP students are easily identified

- Students identify challenges:
  - Expectations of performance in pre-requisite courses (e.g., students taking MAT-143 were unsure if they would pass; the Program start date was before they would know prerequisite course grade)
  - Wanting to take more than one course
  - Needing to work while taking the course
  - Uncertainty in ability to obtain/retain housing
  - Uncertainty in successfully completing a rigorous STEM course in only six weeks

Student Outcomes

2013	
Students recruited	**27**
Students completing	**24**
Retention	88.9%
MAT-161 Class Average	*94.0%*
CHE-104/104L Class Average	*86.3%*
2014	
Students recruited	**42**
Students completing	**36**
Retention	85.71%
MAT-161 Class Average	*93.40%*
MAT-162 Class Average	*85.70%*
CHE-103/103L Class Average	*83.50%*
2015	
Students recruited	**24**
Students completing	**24**
Retention	100%
MAT-161 Class Average	*87.30%*
CHE-103/103L Class Average	*88.30%*

Program Assessment

- According to the student survey, more than 95% of student participants had a positive experience

- Faculty and staff were equally positive about their experience

- Funding for program is uncertain and institutional financial support decreases every year

- Program components have to be prioritized to better prepare for what funds will be available

Recommendations

- Increase funding and staffing resources
  - CSTEP/LSAMP should maintain its no charge policy to its students

- Continue the team approach for support services

- Continue to include non-CSTEP/LSAMP students

- Keep the tutoring model!
  - Tutors heard exactly the same lectures as students, enhancing the effectiveness of tutorial sessions offered by the program
  - Students and tutors can more effectively focus on the concepts emphasized by the faculty