Bridge Learning Communities

November 19, 2015

The Webinar Will begin at 3 PM
Eastern Time
Webinar Details

• For this webinar you will be in listen only mode using your computer or phone
• Please ask questions via the question window
• This webinar is being recorded – you will be sent a recording link
Disclaimer: This material is based upon work supported by the National Science Foundation under Grants # 1205077 and # 1261893. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
The CCTA IS Led By

- National Center for Convergence Technology (CTC) based at Collin College in Frisco, TX (lead)
- South Carolina ATE National Resource Center (SCATE) based at Florence Darlington Technical College in Florence, SC
- Florida ATE Center (FLATE) based at Hillsborough Community College in Tampa, FL
- Bio-Link Next Generation National ATE Center for Biotechnology and Life Sciences (Bio-Link) based at City College of San Francisco in San Francisco, CA
- Networks Resource Center based at the Maricopa Community College District in Phoenix, AZ
CCTA Purpose

• Respond to a request from the Department of Labor (DOL) to the NSF to have ATE Centers provide technical assistance services to DOL TAACCCT grantees
  – Success coaching
  – In-person convenings
  – Knowledge management /best practices
  – Peer-to-peer learning
CCTA Activities are Relevant for

• Department of Labor grants
• National Science Foundation Projects and Centers
• Workforce-oriented programs of all kinds
Deliverables

• Topical Webinars and Teleconferences On
  — Existing and new solutions
  — Live/recorded with attendee Q&A
  — Archived on www.atecentral.net

• Other online media including videos and transcripts
Deliverables Continued

- Invitations to regional discipline-specific conferences
- Identify and document best practices
- Host convenings
About the Presenters

Elaine Johnson, PhD
PI & Executive Director, Bio-Link
City College of San Francisco

Rob Yung, MA
Instructor
Bridge to Bioscience Program

Katherine Krolikowski, PhD
Biological Sciences
Contra Costa College

Jeff Rapp, PhD
Biotechnology Program Chair
Athens Technical College
Real Outcomes of a Bridge Program

Bridge Program at CCSF

https://www.youtube.com/watch?v=1Ka_aiHKlqg
The Value of Learning Communities/Communities of Practice

- Learning Communities/Communities of Practice are groups of people who share common concerns and deepen their knowledge and expertise by interacting on a regular basis.

- The health of a CoP depends on voluntary engagement of members and emergence of internal leadership.

*Cultivating Communities of Practice, 2002, Etienne Wenger, Richard McDermott, and William Snyder*
Why Start a Bridge Program?

- Students entering technical programs face challenges in achieving success in Gateway classes
- Community members learn from each other
- Colleges want to use “best practice” models that promote student success
- Funders want evidence of success
Today’s Agenda

• Each presenter will have 10 minutes to describe their own experience with Bridge Programs or Bridge Learning Communities.

• Audience Questions and Discussion
College Completion—“The Big Goal”

Degree attainment in other countries is outpacing the US, decreasing our economic growth and competitiveness. So our country has set some high goals:

“By 2020, America will once again have the highest proportion of college graduates in the world.” - President Barack Obama

“Community Colleges to produce an additional 5 million graduates by 2020.” - White House

“The number of low-income adults with degrees/certificates will double by 2025” - Gates Foundation
The Problem

Skills gap: Incoming students to community college often lack the academic and basic skills to handle college level coursework.

The traditional approach: remediation

84% of California CC students placed into remedial math.
72% of California CC students placed into remedial English.

Does our current approach to remediation address this skills gap well?
Is Traditional Remediation a Success?

84% into remedial math
But only 10% successfully make it to college level math.

72% into remedial English
But only 25% make it to transfer level English.

Hardly a success!

Other Challenges

1. Abstract academic concepts
   - Students don’t see connections between English, math and their major. Not contextualized.

2. Lack of basic skills foundation
   - Students are often never taught how to study

3. Rationale of assignments is unknown to student
How Do Bridge Programs Address These Barriers?

1. Academic support is infused. Instructional focus is not just what to do, but how to do it. (Not just input and output, but process)

2. Not basic skills remediation THEN classes in your major; basic skills remediation WITH content from your major

3. Cohort model

4. Dual enrollment

5. Professional development
   - Career awareness and exploration/Job announcement, resume, cover letter and interview instruction
   - Non-academic support: financial aid, disability assessment, and college resources
Other common Bridge program aspects

1. Connect to points on a career ladder (stackable certificates) so students can envision the pathway

2. Assessments are project-based for application

3. Industry certification articulates with academic degrees
What Bridge Models Exist?

1. I-BEST
2. LaGuardia
3. Bridge to Biotech
“Initiatives like the I-BEST program in Washington state combine basic and career skills classes to ensure that students not only complete college, but are competitive in the workforce from the moment they graduate.”

President Barak Obama
CQ Transcripts Wire
Speech on Higher Education
April 24, 2009

Integrated-Basic Education and Skills Training (I-BEST)

1. Based on WA Tipping Point Research

2. Team taught: Basic skills AND content in same class

3. Equal overlap in instructional time required to qualify for 1.75 FTE reimbursement

4. Content and basic skills must be presented for at least 50% of classroom time

5. Initial criticism of high cost eventually refuted: Benefit is from decreased time spent in both basic skills and content classes

Source: Contextualized College Transition Strategies for Adult Basic Skills Students: Learning from Washington State’s I-BEST Program Model. Wachen, Jenkins, Belfield, and Van Noy, 2012. CCRC
La Guardia

Programs

• GED Bridge to:
  – Business Careers
  – Health Careers
  – Professional Careers

Aspects

• Career-Related Coursework
• Career Pathways Counseling
• College Readiness Activities
• Transition Support Services
LaGuardia Data

1. Foundation = “contextualized curriculum.”
2. Higher completion: from 47% to 68%
3. Higher GED pass rates: >2x’s
4. Higher college enrollment: >3x’s

Bridge to Biotech (B2B) Program at City College of San Francisco

Entryway for students without any scientific background

Bridge to Biotech Program
- ET 108A (Math for Biotech)
- ET 107 (Language for Biotech)
- BTEC 10 (Intro to Science)

Bridge’s Internship and Job Preparation Program
- BTEC 14A (Lab Skills for Biotech)
- Internship (180 hours)
- BTEC 14B (Internship Experience)

Biotechnology Laboratory Assistant Certificate

General Biology and Chemistry Courses

Biotechnology Certificates
- Biomanufacturing
- Biotechnician
- Stem Cells
- Genomics Technology
- Bioprocess Instrumentation and Control

AS Degree in Biotechnology or Biomedical Equipment Technician (BET)
1. **Retention**: 82%

2. **Persistence**: 83% persist beyond Bridge, take twice as many units and stay in school three times longer.

3. **Completion**: Bridge graduates complete twice as many biotech certificates.

4. **Success** in gateway courses: 77% pass, while 50% of non-Bridge students fail.

5. **Hiring**: 40% of interns are hired by mentors after internships.
Questions?
Bridge to Biotechnology
TAACCCT Grant project
(Design-It, Build-It, Ship-It)
Katherine Krolikowski, Ph.D
Contra Costa College

Agenda:
- Why B2B at CCC?
- The Program
- Nuts and Bolts
- Sustainability
Why Build the Bridge to Biotech Course and Cohort Program at CCC?

- Knew about CCSF’s program (Regional collegiality in biotech, Bio-Link, NSF Synergy Project)
- Feeder High School Academies (contextualized, career and college-ready)
- Entry-level job training
- TAACCCT funding, supportive dean, my own interest in multidisciplinary collaboration (ENGL, MATH, COUNS, BIO)
- Provides entry-point, increases access for advanced programs: Biotechnology, Allied Health, CSE/STEM majors
- Opportunity to add a needed class and form cohorts
Bridge to Biotechnology Cohort Program Structure at CCC

Core academics contextualized to key job skills, and VICE VERSA!

MATH (Algebra I or II):
- Making solutions/media (ratios, proportions, subtraction)
- Data analysis and graphing (linear relationship)

ENGLISH (College level or 1 level below):
- Reading complex instructions, putting into own words (paraphrase)
- Paragraph, different types (process, data description, summary)
- Citing evidence, reasoning/analysis

COUNSELING (personal development):
- Showing up on time, being professional
- Being prepared, knowing the “system”
- How to cope with getting behind
- Self-reflection, goal-setting, planning
More About The Bridge

BIOTECHNOLOGY BRIDGE COURSE:
- Extremely structured
- Expectations/rubrics very clear: necessitated from ENGL, MATH, COUNS collaboration
- Real Science (technical, documentation, scientific reasoning, dealing with unexpected/troubleshooting
- High-level equipment for beginning students (TAACT $)
- Designed with H.S., Pre-nursing, DVC Medical Lab Tech, Biotech pathways in mind.
- Used CCSF curriculum (B2B grant)

Sustainability
- Portability & GE/transfer (C-ID,IGETC)
- Pre-requisite option for other courses/program
- C-ID system in CA
- Options to maximize awards (eg. option of Algebra I or II)
- Stackable (or is it a Pathway?)
Synergy Between Grant Goals
-> Sustainability
Work-based learning in H.S.&C.C.
Regional alignment
Science transfer, URM Access

- Spotlight new introductory Biotech lab course
- Pre-requisite to many pathways

BioSc 172L is the basis for all three career pathways!

**BIO SC 172L**
Introduction to Biotech Lab

**BIO SC 172**
Introduction to Biotechnology

**Biology Transfer Degree**

**Biotech Certificate (work!)**

**Biotech Lecture**

**BIO SC 157/9**

**BIO SC 147**
Majors Biology

**BIO SC 134**
Human Physiology

**BIO SC 119**
Microbiology

- Aligns with High School Academies
- Lab helper to H.S. Science faculty
- Allied Health
Goals and Challenges

- Goal of program is to increase:
  - Pipeline in STEM majors at CCC, especially URM’s
  - Access to biotech/pre-allied-health/STEM for under-prepared students interested in life sciences

- Not all enrolled in all linked courses
  - Program coordination an issue

- Data on Next slide
BIOSC 172L Data

• **First cohort:** 18 started, 11 completed, 8 passed
  • 1 enrolled in next Biotech course and is a Biotech major

• **Second cohort:** 18 started, 11 completed, 9 passed
  • 4 enrolled in additional Biotech course, 2 as a biotech major

• **Third cohort:** 20 started, 16 completed, 11 passed
  • 5 plan to continue in biology/biotech
Thanks To:

- Faculty Colleagues
  - Ed Cruz
  - Bruce Simon
  - Sherry Sharufa
  - Trung Nguyen
  - Lauren Nahas
  - Ben Jahn
  - Jennifer Johnson
  - Rebecca LaCount
  - Suzanne Huey
- Administrative and technical support
  - Donna DeRusso
  - Kelly Schelin
  - Brian Williams
  - Min and Victor
  - Randy Tillery
  - Jeffrey Michels, Terril Mead
  - Norma Valdez-Jimenez
- Bio-Link Connections!!
  - CCSF team
  - Eilene Lyons, Jeff Rapp
- All who have shared successes and challenges!

A College District that supports innovation and action!
Contra Costa Community College District
Dr. Helen Benjamin, Chancellor

Contact Information:
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Update on the Bridge to Bioscience Adoption at Athens Technical College

Jeff Rapp, Ph.D.
Biotechnology Program Chair
Athens Technical College
First Challenge:
Students not getting past “gatekeeper” chemistry course due to poor math preparation
Effect of Laboratory Calculations Class (BTEC 2130) on Passing the “Gatekeeper” Chemistry I Course

Chemistry I grades from students enrolled fall 2009:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D,F,W</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>11</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>56 total</td>
</tr>
</tbody>
</table>

57% passed the “Gatekeeper”

Chemistry I grades from students who previously took Laboratory Calculations class:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D,F,W</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>7</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>31 total</td>
</tr>
</tbody>
</table>

71% passed the “Gatekeeper”
Effect of Laboratory Calculations Class (BTEC 2130) on Passing the “Gatekeeper” Chemistry I Course

Chemistry I grades from students who previously took Laboratory Calculations class (2014-2015):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>D,F,W</td>
<td>1</td>
</tr>
<tr>
<td>no chem yet</td>
<td>3</td>
</tr>
</tbody>
</table>

Total = 12

Of those who took chemistry, 89% passed the “Gatekeeper”
Second Challenge:
Students generally not prepared for college coursework, study skills and time management skills needed

(Also deficits in laboratory notebook maintenance)
Three courses make the Bridge to Bioscience!

(Adaptation of the Bridge to Bioscience program at City College of San Francisco)
<table>
<thead>
<tr>
<th>Semester 1 (Fall)</th>
<th>BTEC 2130 Basic Laboratory Calculations</th>
<th>2cr</th>
<th>FSSE 1000 First Year Seminar</th>
<th>3cr</th>
<th>BIOL 1111&amp;L Biology I &amp; Laboratory</th>
<th>4cr</th>
<th>MATH 1111 College Algebra</th>
<th>3cr</th>
<th><strong>= 12 Credits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 2 (Spring)</td>
<td>CHEM 1211&amp;L Chemistry I &amp; Laboratory</td>
<td>4cr</td>
<td>BTEC 2191&amp;L Fundamental Microbiology &amp; Laboratory</td>
<td>4cr</td>
<td>ENGL 1101 Composition and Rhetoric</td>
<td>3cr</td>
<td><strong>= 11 Credits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester 3 (Summer)</td>
<td>CHEM 1212&amp;L Chemistry II &amp; Laboratory</td>
<td>4cr</td>
<td>BTEC 2192&amp;L Applied Biotechnology Methods &amp; Laboratory</td>
<td>5cr</td>
<td>AREA II Elective Social &amp; Behavioral Sciences</td>
<td>3cr</td>
<td><strong>= 12 Credits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester 4 (Fall)</td>
<td>CHEM 2211&amp;L Organic Chemistry I &amp; Laboratory</td>
<td>4cr</td>
<td>BIOC 2203&amp;L Recombinant DNA Methods</td>
<td>5cr</td>
<td>AREA IV Elective Humanities &amp; Fine Arts</td>
<td>3cr</td>
<td><strong>= 12 Credits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester 5 (Spring)</td>
<td>BIOC 2100&amp;L Biochemistry &amp; Laboratory</td>
<td>5cr</td>
<td>BTEC 2221 Regulatory Compliance</td>
<td>3cr</td>
<td>Biotechnology Elective Org. II or Biol. II or Water Tr. or Wastewater</td>
<td>4cr</td>
<td><strong>= 12 Credits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester 6 (Summer)</td>
<td>CHEM 2300&amp;L Quantitative Analysis &amp; Laboratory</td>
<td>5cr</td>
<td>BTEC 2211&amp;L Industrial Cell Culture &amp; Immunology</td>
<td>4cr</td>
<td>BTEC 2500 Applied Biotechnology Internship &amp; Laboratory</td>
<td>3cr</td>
<td>(&gt; 120 hours)</td>
<td><strong>= 12 Credits</strong></td>
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</table>

**Total Credits: 71**
BTEC 1150: Communication for Lab Sciences

Advantages:

- Forms a cohort earlier in the program
- Study skills useful for all other classes
- Resumes, cover letters, and interviewing skills used to get part-time jobs (even on campus)
- Lab notebook maintenance skills learned earlier
<table>
<thead>
<tr>
<th>Year</th>
<th>Fall Cohort</th>
<th>Spring Cohort</th>
<th>Fall Cohort</th>
<th>Spring Cohort</th>
<th>Fall Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012</td>
<td>8 students</td>
<td>8 students</td>
<td>4 students</td>
<td>3 students</td>
<td>1 certif. +</td>
</tr>
<tr>
<td>Spring 2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fall 2013</td>
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<td></td>
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<tr>
<td>Spring 2014</td>
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<td></td>
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<tr>
<td>Fall 2014</td>
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</tbody>
</table>

2/8 students (25%) retained to receive a certificate or degree.
Retention of Bridge to Bioscience Students at Athens Technical College
(Enrollment in Communication for Lab Sciences Course begins cohort)

Spring 2013 → Fall 2013 → Spring 2014 → Fall 2014 → Spring 2015

13 students → 9 students → 8 students → 5 students → 2 students
(Spring 2013 cohort) + 1 grad. + 3 grads.

Fall 2013 → Spring 2014 → Fall 2014 → Spring 2015

12 students → 11 students → 4 students → 2 students
(Fall 2013 cohort) + 1 grad. + 2 grad. + 2 certif.

Spring 2014 → Fall 2014 → Spring 2015

9 students → 7 students → 6 students
(Spring 2014 cohort)

6/13 (46%) retained with 4 graduates
7/12 (58%) retained with 3 graduates, 2 certificates
6/9 (67%) retained so far
Administrative Support

As part of SACS accreditation, ATC administrators chose to adopt a variation of the Communication for Lab Sciences Course campus-wide!

New course is “First Year Seminar” (FSSE 1000), initiated in Fall of 2014

Questions?

Photo by Gary Meek, Courtesy Georgia Tech

NIH Image Gallery

CCTA | CENTERS COLLABORATIVE FOR TECHNICAL ASSISTANCE
Join Us

January 21, 2016

Leveraging Grants to Achieve Mutual Goals

Dr. Celeste Carter, ATE Program Director, National Science Foundation

www.atecenters.org/ccta
Q&A and Contacts

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• Rob Yung: robyung.ccsf@gmail.com
• Dr. Katherine Krolikowski: kkrolikowski@contracosta.edu
• Dr. Jeff Rapp: jrapp@athenstech.edu
Bridge Learning Communities

Thanks For Attending