



**ATECENTERS**

# 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

# Brought To You By

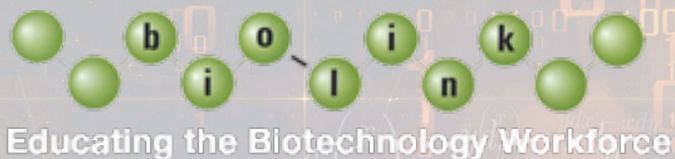
**CCTA | CENTERS COLLABORATIVE FOR TECHNICAL ASSISTANCE**

With Additional Support by the ATE  
Collaborative Impact Project

**ATECENTERS**

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](http://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 Krolkowski, 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](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!**

CCC Chancellor's Office, ARCC Basic Skills Supplemental Report 2009. Center for Student Success, Research and Planning Group. Environmental Scan: Summary of Key Issues Facing CCCs. 2005.



# 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

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

*“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

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

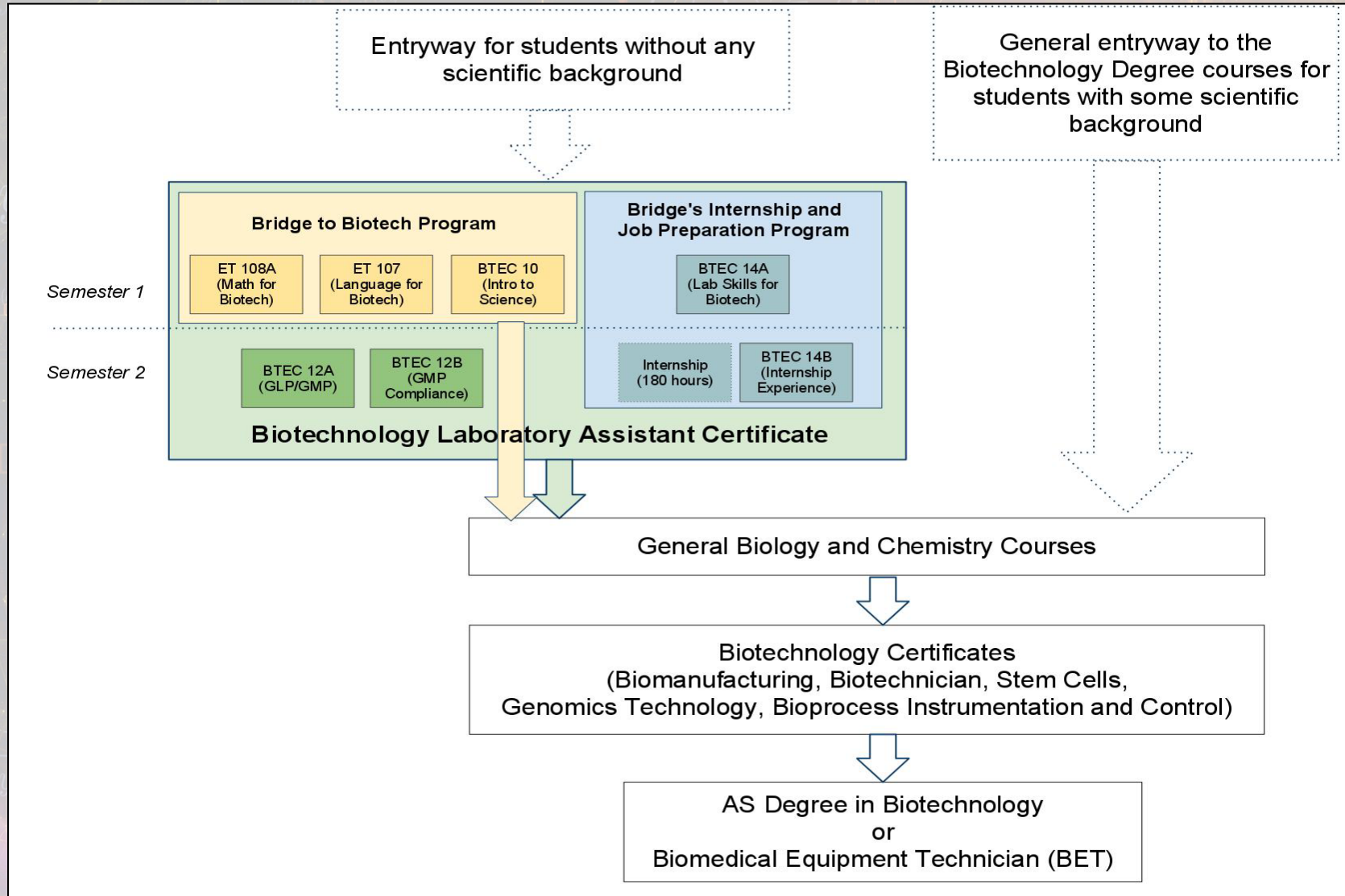
- Career-Related Coursework
- Career Pathways Counseling
- College Readiness Activities
- Transition Support Services

# 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

Source: *New Study Shows LaGuardia Community College’s GED Bridge Program Significantly Boosts GED Pass Rates and College Enrollment.* Hutchins and Fader-Smith. 2013. MRDC

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





# CCSF Bridge to Biotech Data

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?



ATE Centers Impact Publication, NSF Image Gallery

NIH Image Gallery





## Agenda:

- Why B2B at CCC?
- The Program
- Nuts and Bolts
- Sustainability

Bridge to Biotechnology  
TAACCCT Grant project  
(Design-It, Build-It, Ship-It)

Katherine Krolkowski, Ph.D

Contra Costa College



# 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 cohort

# 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**  
Introduction to Biotech Lab

Biotech Certificate (work!)

**BIOSC 157/9**  
Biotech Lecture

**BIOSC 172**  
Introduction to Biotechnology

Biology Transfer Degree

**BIOSC 147**  
Majors Biology

Allied Health Certificate

**BIOSC 134**  
Human Physiology

**BIOSC 119**  
Microbiology

**BioSc172L is the basis for all three career pathways!**

- 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

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# Update on the Bridge to Bioscience Adoption at Athens Technical College

**Jeff Rapp, Ph.D.**

**Biotechnology Program Chair**

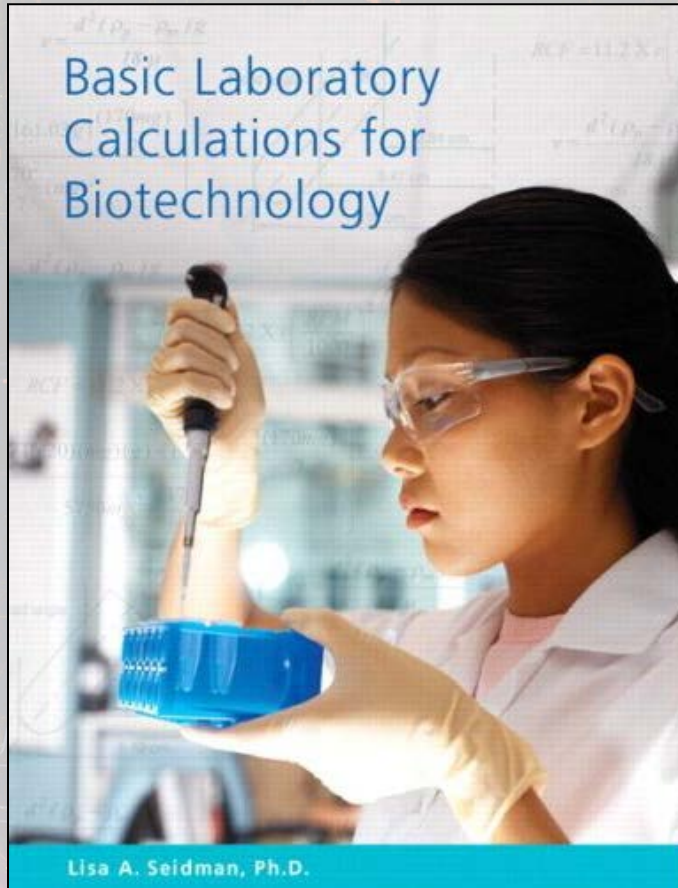
**Athens Technical College**

First Challenge:

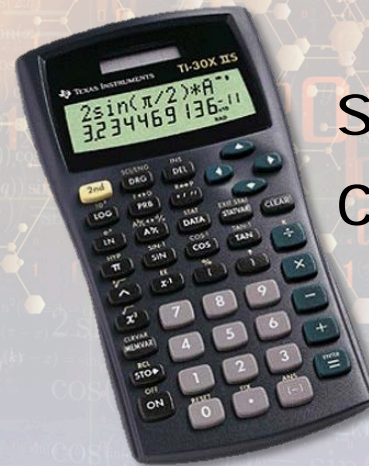
Students not getting past “gatekeeper” chemistry course due to poor math preparation



# Solution: Basic Laboratory Calculations (BTEC 2130)



textbook:  
**ISBN 978-0-13-223810-6**



scientific  
calculator

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

Chemistry I grades from students enrolled fall 2009:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D,F,W</u>	
9	11	12	24	= 56 total

**57% passed the “Gatekeeper”**

---

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

<u>A</u>	<u>B</u>	<u>C</u>	<u>D,F,W</u>	
8	7	7	9	= 31 total

**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):

<u>A</u>	<u>B</u>	<u>C</u>	<u>D,F,W</u>	<u>no chem yet</u>	
3	3	2	1	3	= 12 total

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)



Biology I Lab  
(BIOL 1111L)

Basic  
Laboratory  
Calculations  
(BTEC 2130)

Communication  
For Lab  
Sciences  
(BTEC 1150)

Three courses make the Bridge to Bioscience!

(Adaptation of the Bridge to Bioscience program at  
City College of San Francisco)

<b>Semester 1 (Fall)</b>	<b>BTEC 2130</b> Basic Laboratory Calculations 2cr	<b>FSSE 1000</b> First Year Seminar 3cr	<b>BIOL 1111&amp;L</b> Biology I & Laboratory 4cr	<b>MATH 1111</b> College Algebra 3cr	<b>= 12</b> Credits
<b>Semester 2 (Spring)</b>	<b>CHEM 1211&amp;L</b> Chemistry I & Laboratory 4cr	<b>BTEC 2191&amp;L</b> Fundamental Microbiology & Laboratory 4cr	<b>ENGL 1101</b> Composition and Rhetoric 3cr		<b>= 11</b> Credits
<b>Semester 3 (Summer)</b>	<b>CHEM 1212&amp;L</b> Chemistry II & Laboratory 4cr	<b>BTEC 2192&amp;L</b> Applied Biotechnology Methods & Laboratory 5cr	<b>AREA II Elective</b> Social & Behavioral Sciences 3cr		<b>= 12</b> Credits
<b>Semester 4 (Fall)</b>	<b>CHEM 2211&amp;L</b> Organic Chemistry I & Laboratory 4cr	<b>BIOC 2203&amp;L</b> Recombinant DNA Methods 5cr	<b>AREA IV Elective</b> Humanities & Fine Arts 3cr		<b>= 12</b> Credits
<b>Semester 5 (Spring)</b>	<b>BIOC 2100&amp;L</b> Biochemistry & Laboratory 5cr	<b>BTEC 2221</b> Regulatory Compliance 3cr	<b>Biotechnology Elective</b> Org. II or Biol. II or Water Tr. or Wastewater 4cr		<b>= 12</b> Credits
<b>Semester 6 (Summer)</b>	<b>CHEM 2300&amp;L</b> Quantitative Analysis & Laboratory 5cr	<b>BTEC 2211&amp;L</b> Industrial Cell Culture & Immunology 4cr	<b>BTEC 2500</b> Applied Biotechnology Internship & Laboratory 3cr	(≥ 120 hours)	<b>= 12</b> <b>71</b> credits

# 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

# Retention of Bridge to Bioscience Students at Athens Technical College

(Enrollment in Communication for Lab Sciences Course begins cohort)



2/8 students (25%) retained to receive  
a certificate or degree

Spring 2015  
1 graduate

# 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 + 1 grad. → 5 students + 3 grads. → 2 students  
(Spring 2013 cohort)

**6/13 (46%) retained with 4 graduates**

Fall 2013 → Spring 2014 → Fall 2014 → Spring 2015  
12 students → 11 students → 4 students + 1 grad. → 2 students + 2 grad. + 2 certif.  
(Fall 2013 cohort)

**7/12 (58%) retained with 3 graduates, 2 certificates**

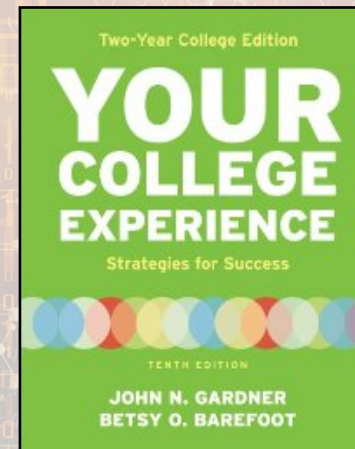
Spring 2014 → Fall 2014 → Spring 2015  
9 students → 7 students → 6 students  
(Spring 2014 cohort)

**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!

textbook:  
**ISBN 978-1-45-762804-7**



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

# Questions?

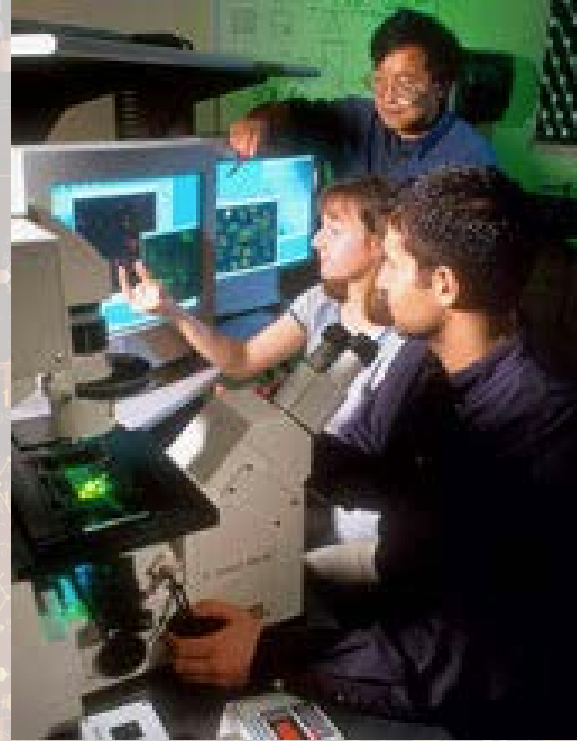


Photo by Gary Meek, Courtesy Georgia Tech

# Join Us

January 21, 2016

*Leveraging Grants to Achieve Mutual Goals*

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

[www.atecenters.org/ccta](http://www.atecenters.org/ccta)



# Q&A and Contacts

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# Bridge Learning Communities

Thanks For Attending