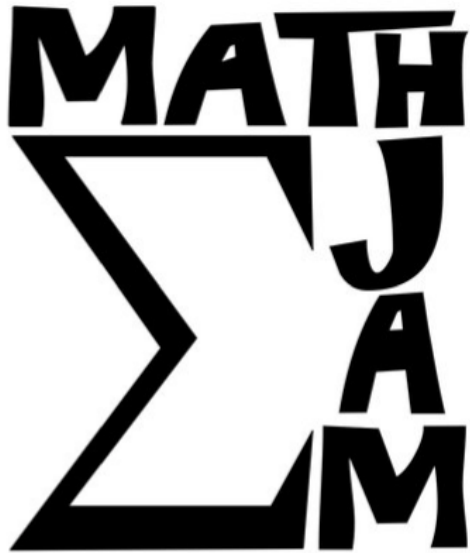


Math Jam!

Building Community and Improving
Math Placement at Cañada College.

CMC³ Fall Conference December 14th, 2013



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Chris Woo

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Introductions

- Schools represented?
- Are you ...
 - Implementing a “Math Jam” / bridge program?
 - Planning to implement?
 - Thinking about initiating?
- What would you like to learn in this session?

An Opener

- Rock-Paper-Scissors Tournament
 - The loser cheers for the winner in the next game(s)
 - The winner inherits all of the loser's cheerleaders.
 - Play until there's one winner in the room.
- Math Question:
 - How many games were played?

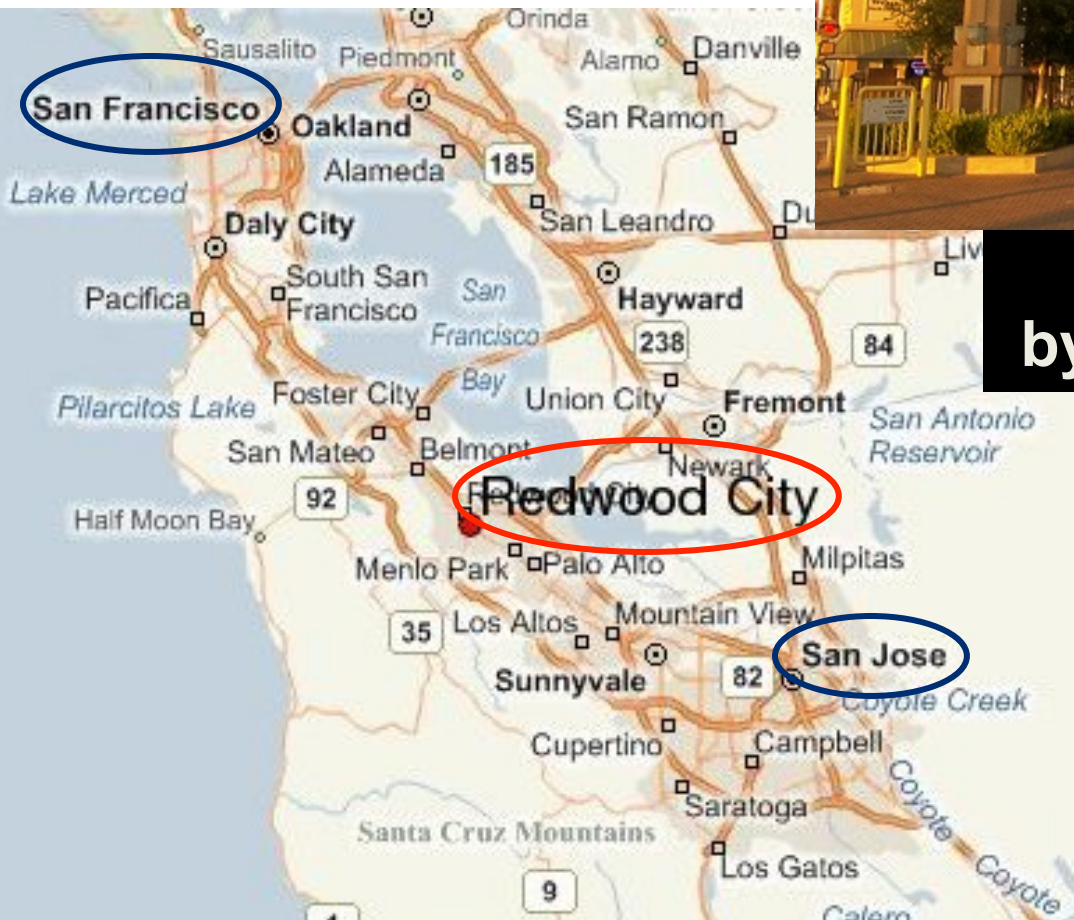
Outline

- Background
 - Who we are
 - The Problem
- Math Jam!
 - Goals
 - Structure
 - Impact on Student Success
 - Impact on STEM community
- On starting your own Math Jam.



CONTEXT

- Cañada College
- Redwood City

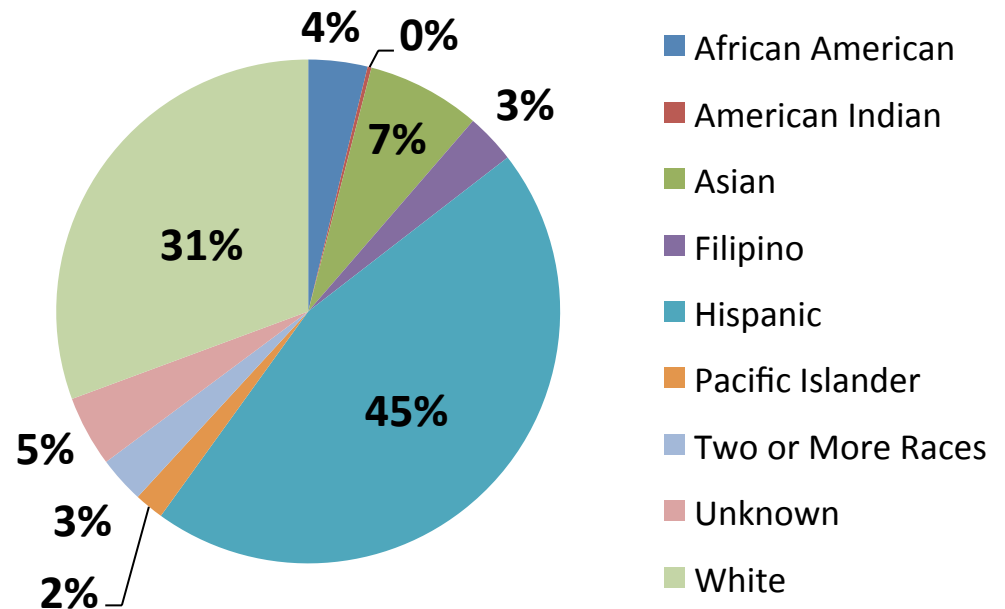


**Climate Best
by Government Test**

About Cañada College

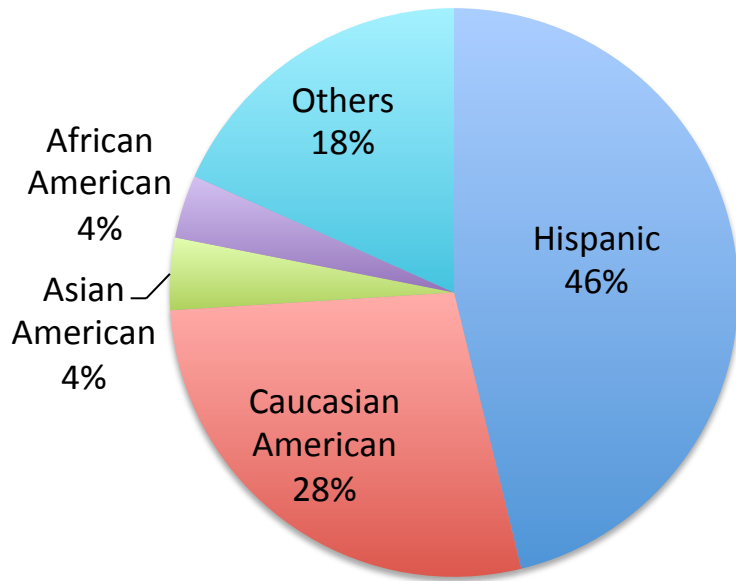
- One of 112 California community colleges
- Federally designated Hispanic-Serving Institution
- One of the smallest in the San Francisco Bay Area

Student Ethnicity - Fall 2012

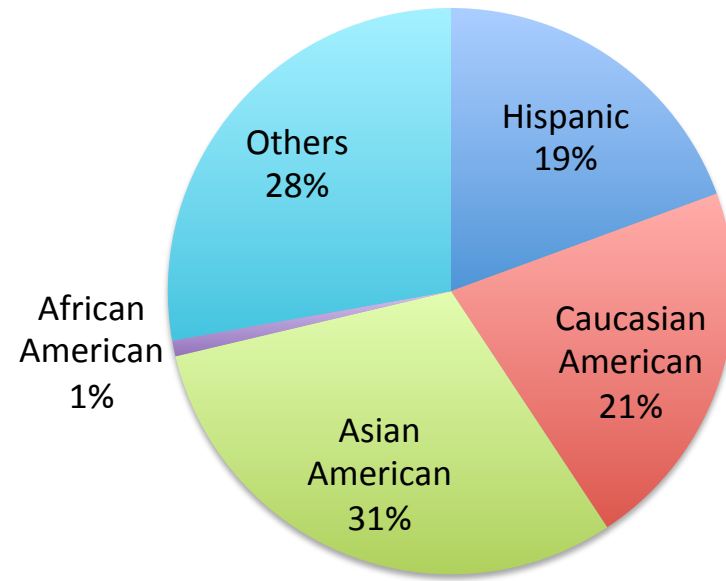


A gap between goals and success.

Declared majors in Engineering



Transferred as Engineering Major



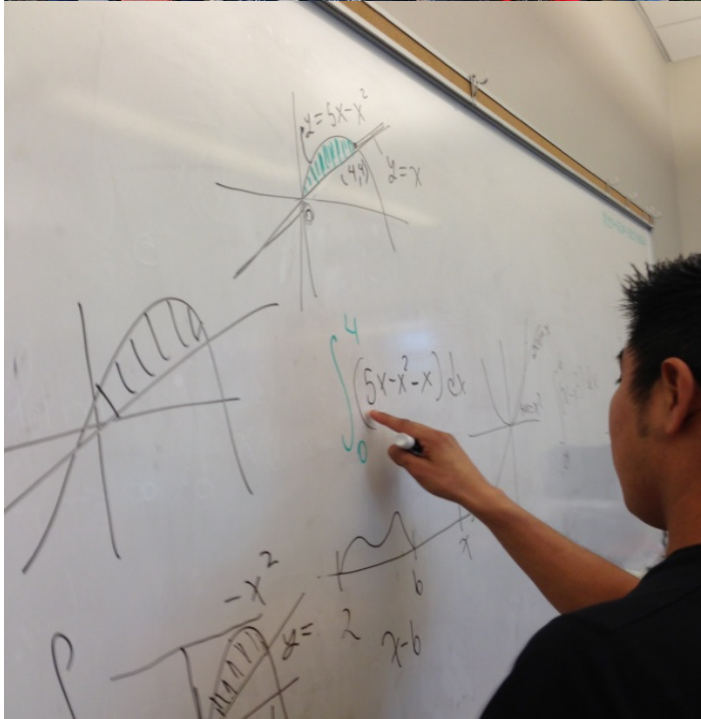
Over 70% of Cañada College Minority STEM Students place into Pre-algebra or Algebra

Ethnic Group	Pre-algebra	Algebra	College Algebra	Trig or Higher
African American	71.9%	15.6%	6.3%	6.3%
Asian American	20.8%	22.9%	33.3%	22.9%
Caucasian American	22.9%	31.4%	24.8%	21.0%
Mexican American	39.1%	26.2%	22.1%	12.5%
All Students	32.9%	26.7%	23.8%	16.6%

Math Jam: FREE! (for students)

- One-week intensive math preparation program
- Developed through a Dept. of Ed grant, then institutionalized (Minority Science and Engineering Improvement Program).
- **Goals:**
 - Help students progress faster through math sequence:
 - Placing higher on college math placement test
 - Improving preparedness and increasing course success rates.
 - Improve student awareness of STEM majors and resources.
 - Increase student knowledge of college success skills.
 - Develop a community of learners among program participants.

Math Jam Elements



- Math Placement Test Preparation
 - Pre-algebra, Algebra, College Algebra, Trig, Precalc, Calculus
- Group Lessons and Individual Tutoring
- Access to Counseling
- Workshops
 - Problem-solving
 - Math Anxiety
 - Time management
 - Test taking strategies
 - STEM career panel
- Coffee, snacks and LUNCH!

Math!



- Used My Math Test
 - Online system by Pearson (similar to MyMathLab)
 - Customizes individual study plan
 - Free from publisher – good for 12 weeks
 - Topics aligned w/course SLOs at each level
- 5-6 Instructors (Pre-algebra, Elementary Algebra, College Algebra, Trigonometry and higher, Stats, Now Calculus)
 - Setup My Math Test problem/topic sequence
 - Monitor Student Progress
 - Plan mini-lessons
 - Manage tutors
- About 1 tutor for every 4-8 students (fewer students per tutor for lower levels).

Math Jam Process

Students Grouped according to Placement or Next Class




MyMathTest Pretest builds individual Study Plan



Lessons, Mini-Lectures, Workshops

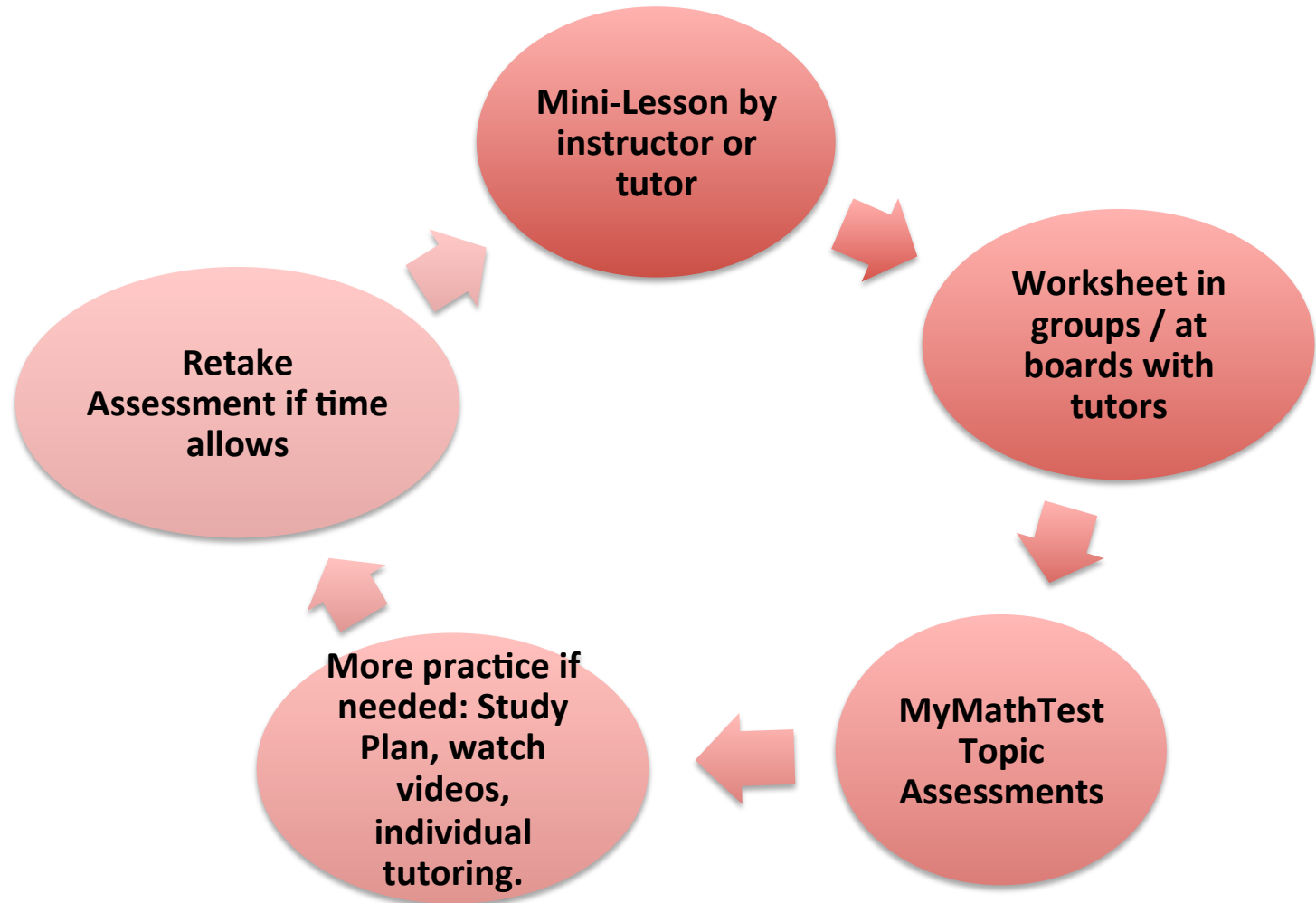


Practice with Study Plan, Quizzes, Tutoring



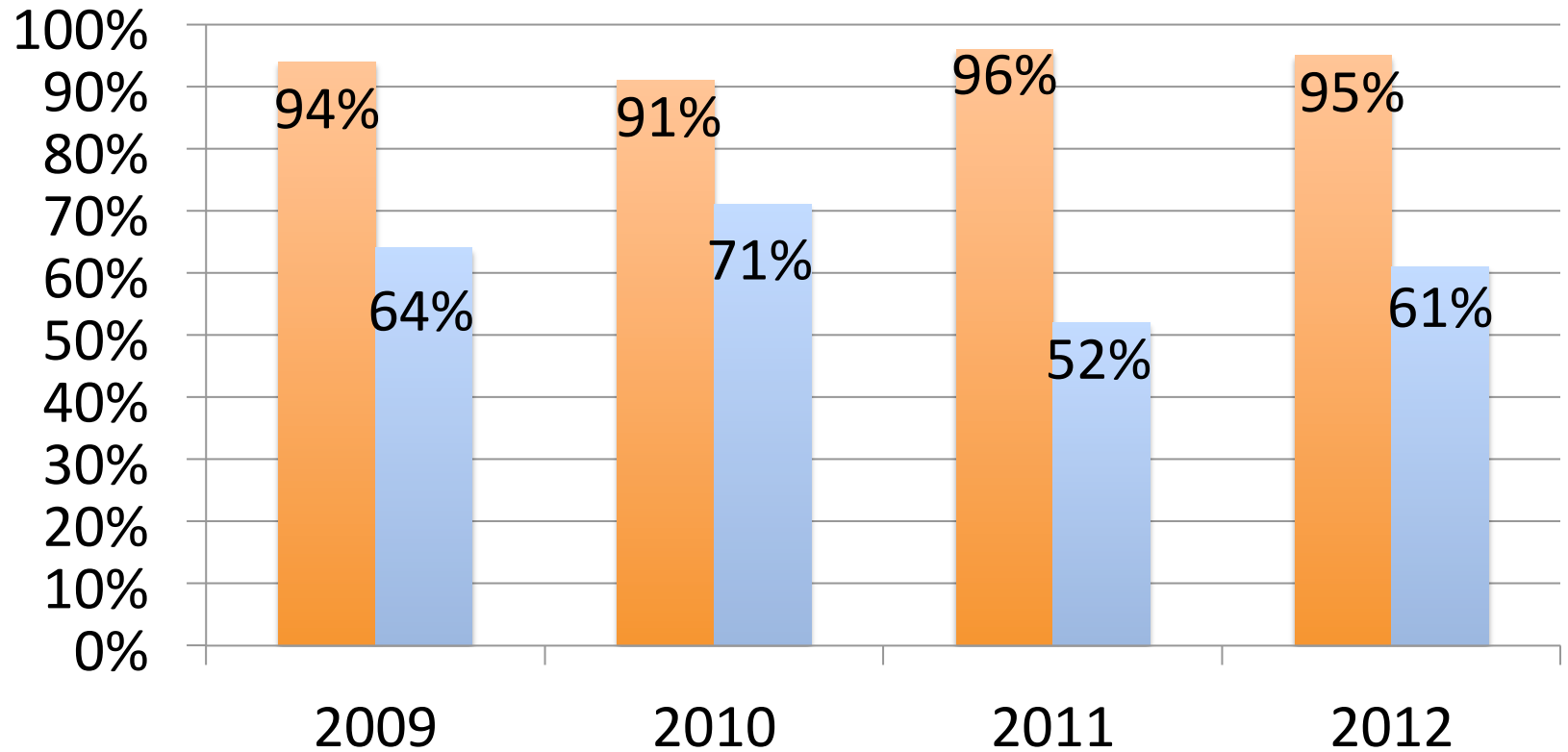
Retake Placement & MMT Posttest
(Now on Sat. Morning)

Topic-Lesson Cycle



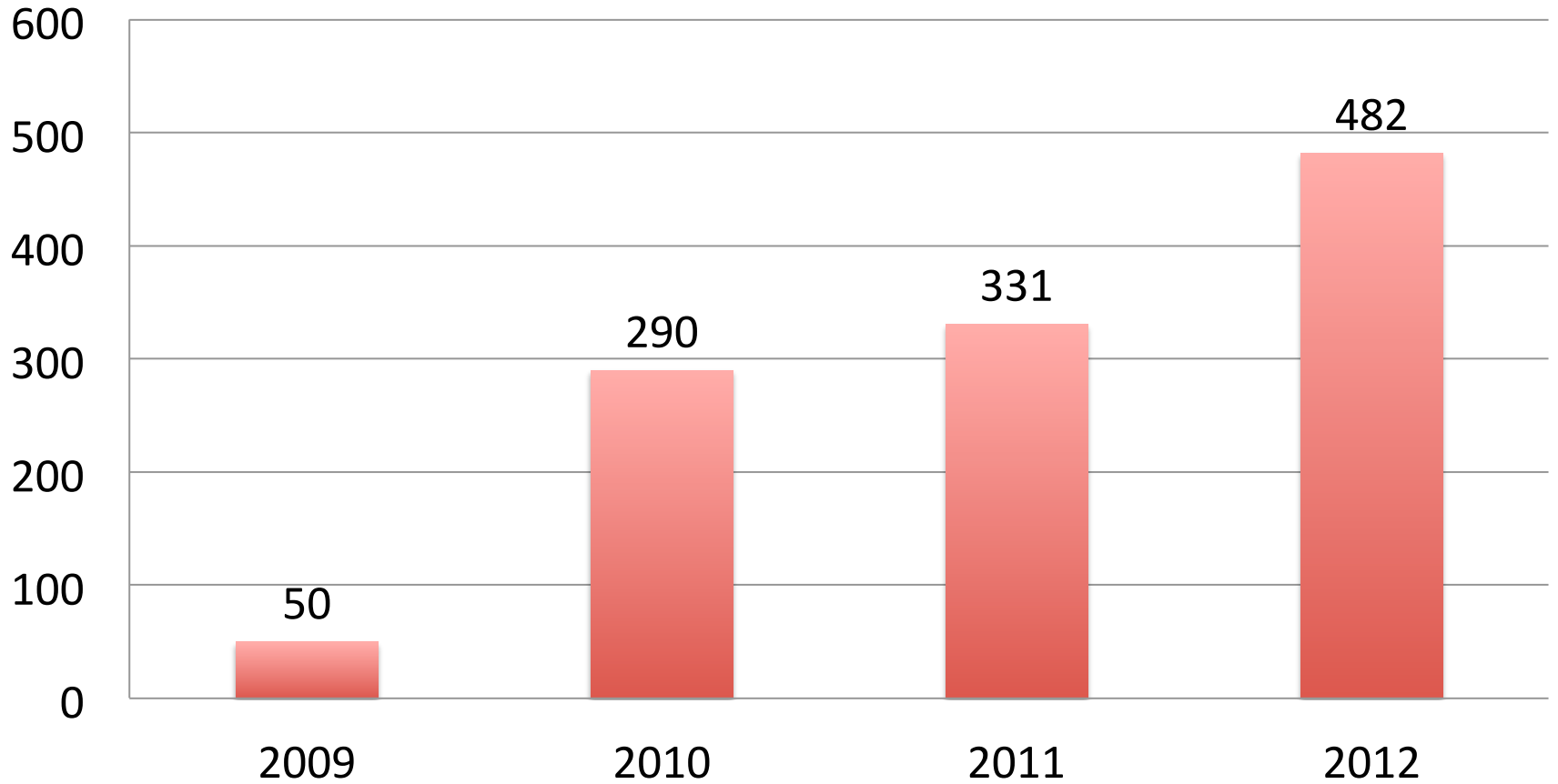
Improved Test Scores

Placed into Higher Level



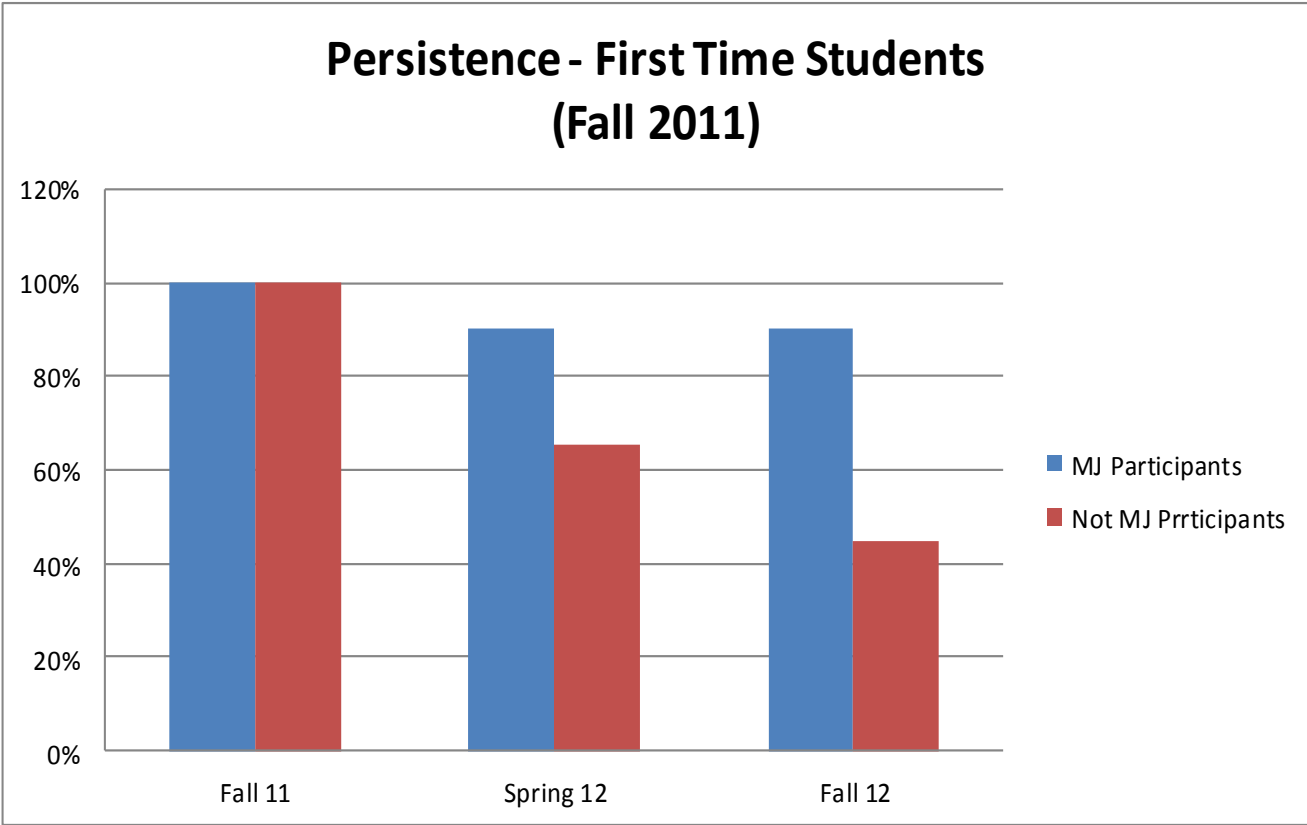
Growth

Math Jam Participants



Persistence of Cañada College Students

- Average Persistence Rates of All First Time Students
- First Time Students who attended 2011 Math Jam



How do Math Jam participants perform in subsequent Math Course?

	<i>n</i>	Retention	Success
2011 Math Jam participant performance in Fall 2011 Math course.	56	93%	77%
All Cañada students performance in Fall 2011 Math course.	1692	77%	53%
	1748	$p=.005$ (Difference is statistically significant at .05 level)	$p<.001$ (Difference is statistically significant at .05 level)

How do Hispanic Math Jam participants perform in subsequent math course?

	<i>n</i>	Retention	Success
2011 Math Jam Hispanic participant performance in Fall 2011 Math course.	31	94%	74%
All Hispanic students performance in Fall 2011 Math course.	629	75%	47%
	660	$p=.017$ (Difference is statistically significant at .05 level)	$p=.003$ (Difference is statistically significant at .05 level)

How do “jumpers” perform in their subsequent course?

	<i>n</i>	Retention	Success
2011 Math Jam “Jumpers”	20	90.47% (19/21)	71.42% (15/21)
All students in Math courses	1692	77%	53%

Impacts of Math Jam

- ❑ Students emphasize that Math Jam had a significant impact on their comfort at Cañada – they feel supported by other students, tutors and faculty.
- ❑ Students become integrated into the campus community and are more likely to utilize resources and engage in activities.
- ❑ Increased social capital and engagement directly impact retention and persistence rates.
- ❑ Program builds cohesiveness between STEM faculty and program staff.

“I learned more in four days at the Math Jam than I did in three semesters at high school.”



“If it weren’t for Math Jam, I’d be failing Calculus II right now. I have an A.”

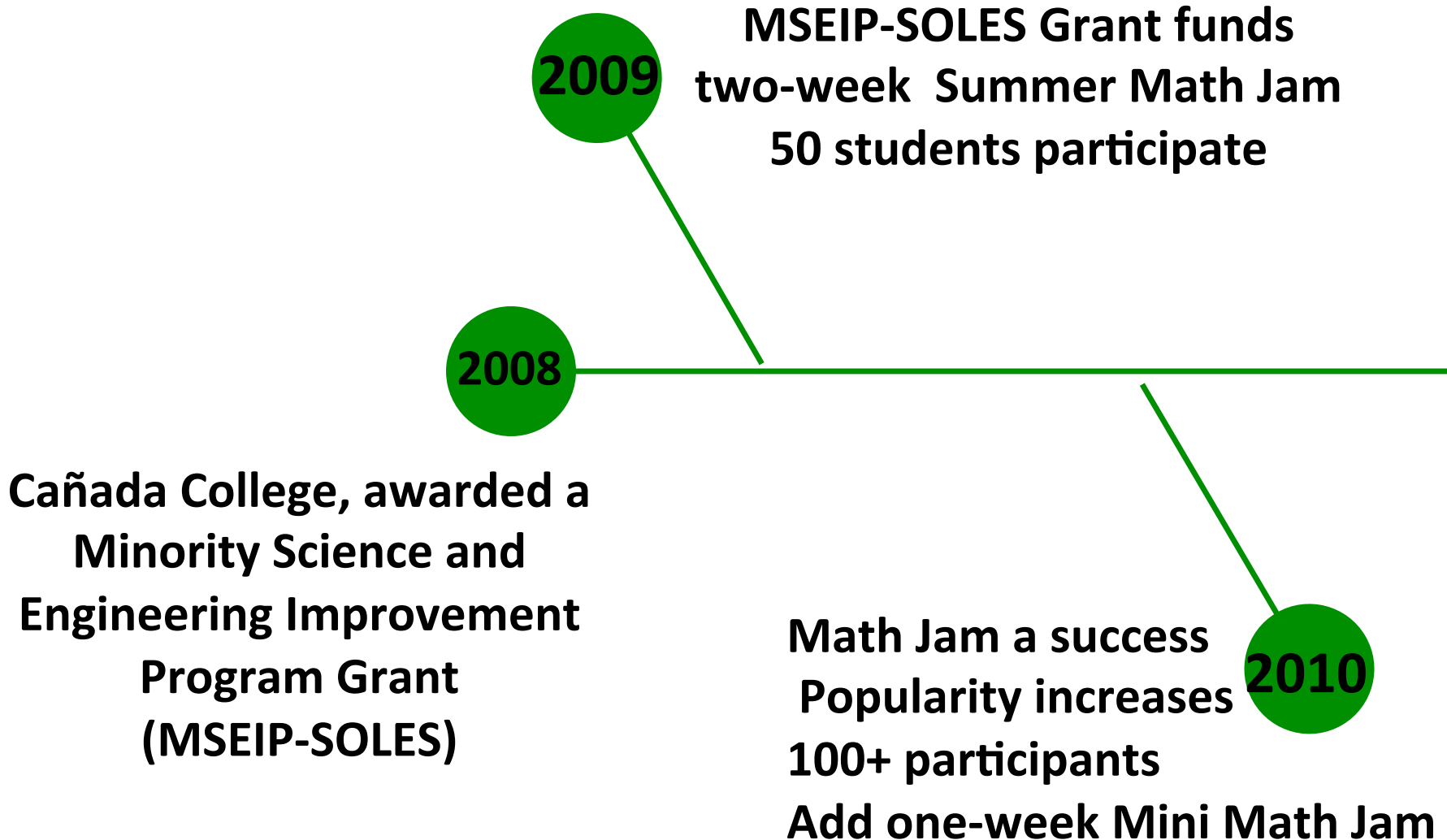
Casual but Focused

- Supportive Environment.
 - Support from professors and tutors.
 - Promotes self confidence in math.
 - Confidence is demonstrated through future classes.
- STEM recruitment works.
 - Makes STEM info available to students and opens up opportunities.
- Recruits and trains tutors.
 - Math Jam participants often come back as Math Jam tutors in the future.
- Strong community and identification with STEM CENTER



The
STEMCENTER
at Cañada College

Evolution of Math Jam



**HSI-STEM CalSTEP Grant received
Evening Math Jam is born**

2011

**Physic-Jam and
Word Jam
Spawned**

2012

2011

2012

**Math Jam participation exceeds
300 students annually
Persistence, retention, success
results -all positive**

**Math Jam institutionalized!!
Funded by local bond issue and
Basic Skills**

Math Jam wins!!

- Example of *Excelencia*,
- J. Russell Kent
- ASCC Exemplary Program Awards

2013

2013

**Calculus and Above group added
(20+ participate)**

January 7-11, 2013

MATH JAM

Daytime: 9:00 am - 3:00 pm

Evening: 6:00 pm - 9:00 pm

canadacollege.edu/STEMcenter/MathJam
apply by December 28, 2012

Mini

Math Jam

January 9-13, 2012

6:00 P.M. – 9:00 P.M.

NIGHT

OR

You choose.

DAY

9:00 A.M. – 3:00 P.M.



Applications Due:

December 2, 2011

canadacollege.edu/BRIDGE

design by dani reding lapuz

JAM on it.

Math Jam

June 4-14, 2012 (M-TH)
Daytime: 9:00 am - 3:00 pm
Evening: 6:00 pm - 9:00 pm

Physics Jam

July 9 - August 3, 2012 (M-TH)
9:00 am - 3:00 pm

Mini-Math Jam

August 13-17, 2012 (M-F)
Daytime: 9:00 am - 3:00 pm
Evening: 6:00 pm - 9:00 pm



Apply ONLINE by May 18, 2012
canadacollege.edu/MathJam



Mini

PHYSICS JAM

January 7-11, 2013

9:00 am - 3:00 pm

Review mathematical concepts needed to succeed in Physics and more (recommended for incoming Physics 250 & 260 students).



canadacollege.edu/STEMcenter/PhysicsJam

apply online by **December 28, 2012**

THE STEM
CENTER

at
Cañada
COLLEGE



Path To STATISTICS

Complete the math transfer requirement in 2 semesters

Math 879CA - 6 units

00am

transfer-level

er. This course
Math (STEM)
prerequisite for
to CSU or UC.

on District

z at

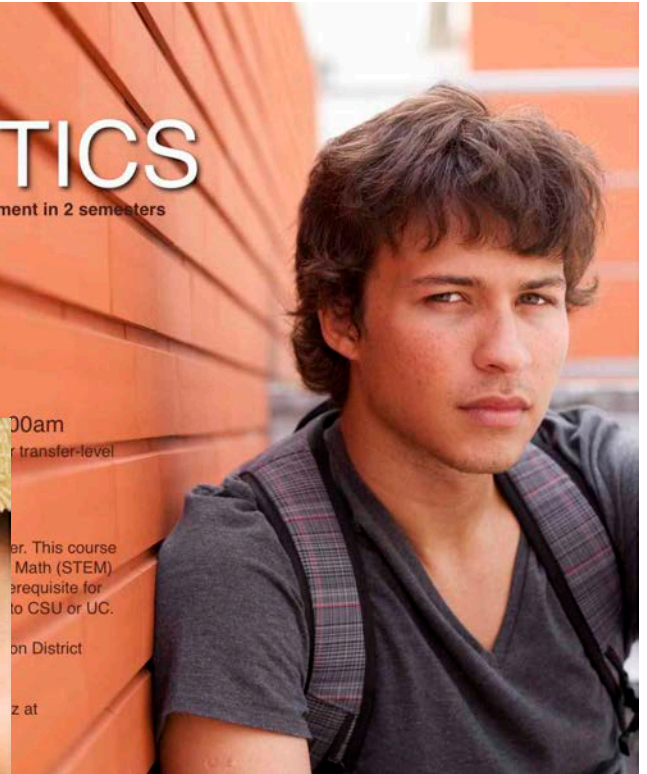
two courses,
one semester.

Fast Track to CALCULUS

Math 130 Analytical Trigonometry (CRN 43396) 4 units
Math 222 Pre-Calculus (CRN 43558) 5 units

You can complete both trigonometry and pre-calculus in just one semester. Get access to additional support and tutoring to help you focus on learning math. Students enroll in Math 130 AG now and we will enroll you in Math 222AB when classes begin. For more information, please contact Denise Hum at humd@smccd.edu.

canadacollege.edu/STEMcenter/FT2C



Trophy Room

- [National: Excelencia Award](#)



- State Academic Senate:
Exemplary Program Award



ACADEMIC SENATE
for CALIFORNIA COMMUNITY COLLEGES

- Local: J. Russell Kent Award

SMCSBA
San Mateo County School Boards Association



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Math Jam
143 likes · 2 talking about this · 14 were here

 Liked  Message 

Education
Apply online: canadacollege.edu/mathjam



 143



About - Suggest an Edit

Photos

Likes

Map

 Chat (4)

Grow your own Math Jam...

- Branding is important.
- Institutionalize:
 - Work closely with existing programs especially the tutoring center.
- Pay Teachers and Tutors!
- Ask us any questions
- Visit Math Jam!
- [Math Jam Toolkit](#) Available
hoffmanm@smccd.edu



Questions to Start

1. What do you see as the elements of a successful program your institution?
2. Who are the people in the various areas who would be able to make it happen?
 - Instructors
 - Learning Support Staff
 - Tutors
 - Administrative Support
3. What are some possible funding sources?
(Grants? Basic Skills? ...)

Math Jam Toolkit

- Detailed description and advice on:
 - Funding ideas
 - Outreach and Registration
 - Staffing, Supplies, Timeline etc.
 - Curriculum
 - Evaluation
- Sample Documents:
 - Student Contracts
 - Registration forms
 - Curriculum ideas
 - Checklists
- Email:

Acknowledgements

- STEM Center Team:
 - Janet Stringer, Dean
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 - Yvette Butterworth
 - Judy Choy
 - Parvaneh Darafshi
 - Jonathan MacSwain
 - Christina Arenas
- Math Jam Tutors!!



The
STEMCENTER
at Cañada College

Thank You!

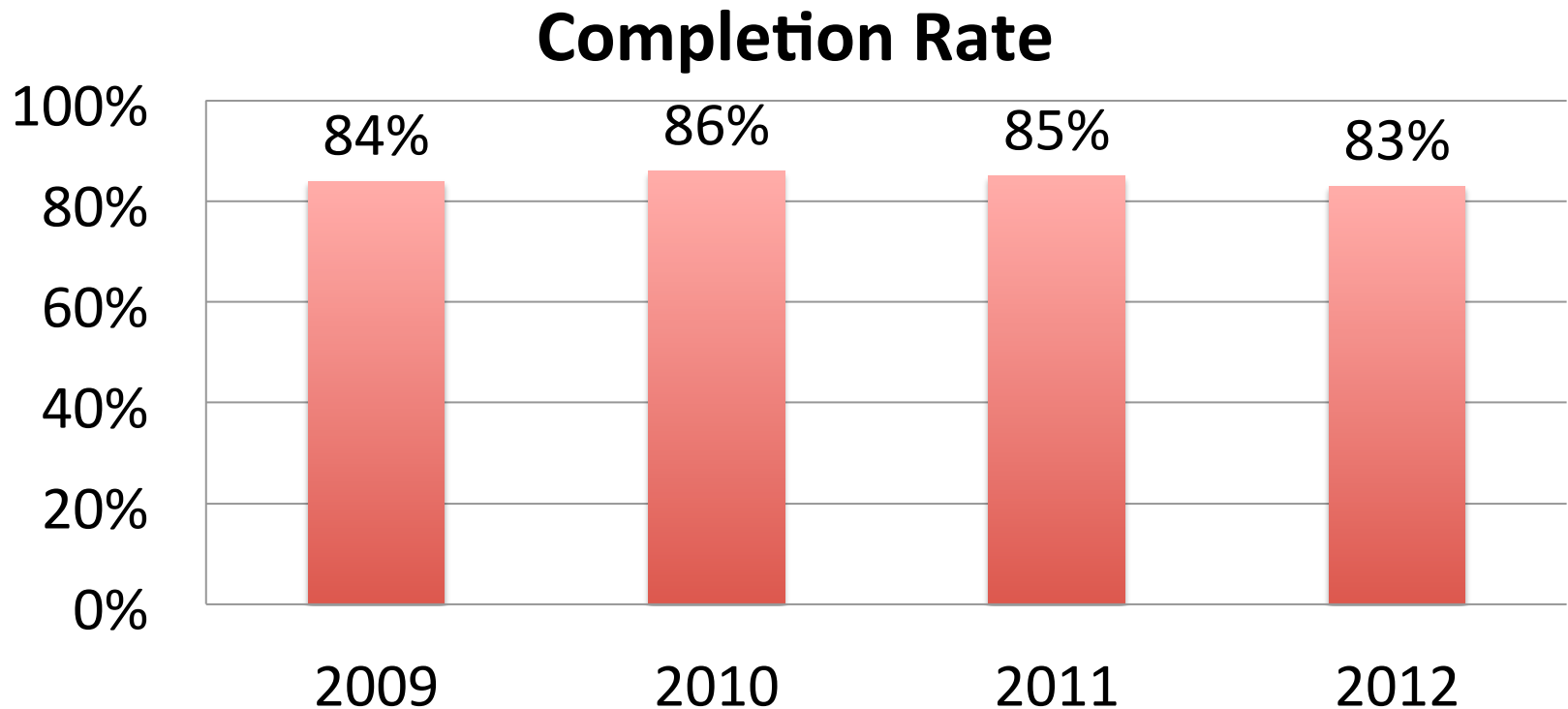
Michael Hoffman

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Citation

- Enriquez, A. (2010) , *Strengthening the STEM Pipeline through an Intensive Review Program for Math Placement Testing*, American Society of Engineering Educators (ASEE)

Student Completion Rate*



*Completion means student took the posttest and the post-program survey.

2010 Math Jam Attitudes

Question	Pre-Program	Post-Program	Difference (Post - Pre)
How would you rate your math study skills? 1=poor, 5=excellent	3.06	3.64	0.57***
How would you rate your confidence in math? 1=not at all confident, 5=very confident	3.16	3.62	0.46**
How effective are you at time management? 1=not at all effective, 5=very effective	3.70	3.81	0.11
To what extent do you have supportive relationships with students at Cañada? 1=not at all supportive, 5=very supportive	3.77	4.13	0.36*
To what extent do you have supportive relationships with tutors at Cañada? 1=not at all supportive, 5=very supportive	3.66	4.38	0.72***
How interested are you in studying STEM? 1=not at all interested, 5=very interested	3.78	3.83	0.05