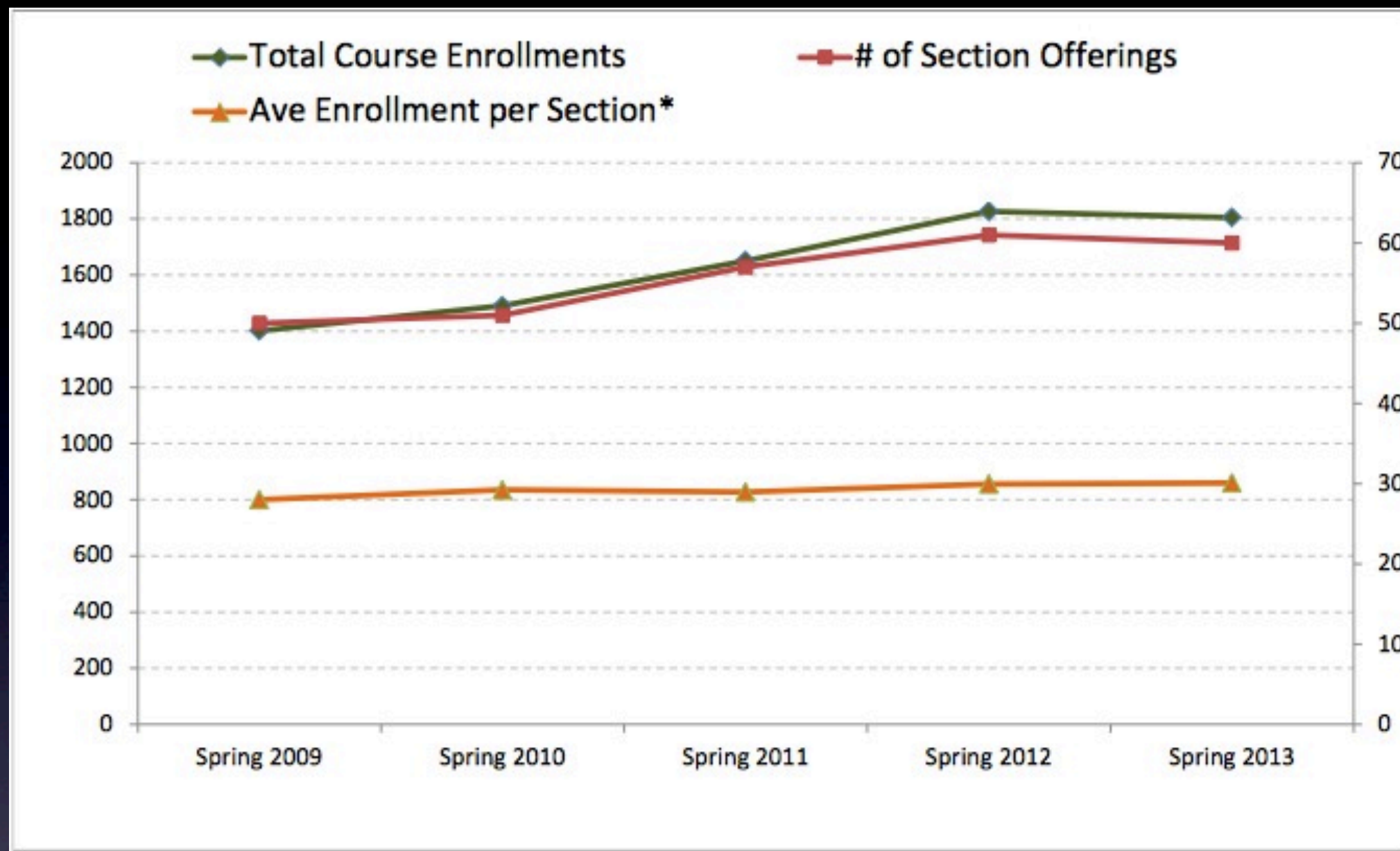


# Math Department Position Justification Fall 2013

Nearly every student at Cañada  
College takes at least one math class!!

# Main Points

- Demand for math classes is large and growing  
(25% of all students in a given semester)
- 6 FT and 15PT teach ~60 sections.
- Abundance of grant and state funded projects place demands on FT faculty.



**Table 2. Department Efficiency**

Department	Metric	Term				
		Spring 2009	Spring 2010	Spring 2011	Spring 2012	Spring 2013
MATH	WSCH	7526	8020	8493	7857	7598
	FTES	250.9	267.3	283.1	261.9	253.3
	FTE	11.27	11.13	12.53	13.87	14.11
	Load*	668	720	678	567	539

\*Color Coding: Peach shaded cells contain values at least 10% lower than the college average; blue shaded cells at least 10% above the college average.



Over the past 5 years the number of students whose goal is to transfer has gone from 1034 in 2008/09 to 1772 in 2011/12, an increase of 71% !

$$1772 - 1034 / 1034 = 738 / 1034 = 0.7197$$

Department	Metric	Academic Year				
		2007/08	2008/09	2009/10	2010/11	2011/12
MATH	Transfer (w/ or w/o Degree)	1034	1190	1371	1578	1772
	Career Dev (Degree, Certificate, License)	211	263	342	391	431
	Educational Development	261	200	341	357	313
	4 Yr College Student attending Cañada	350	342	337	271	184
	Undecided on Goal	141	192	219	275	270
	% Transfer (w/ or w/o Degree)	51%	53%	52%	55%	60%
	% Career Dev (Degree, Certificate, License)	10%	12%	13%	14%	14%
	% Educational Development	13%	9%	13%	12%	11%
	% 4 Yr College Student attending Cañada	17%	15%	13%	9%	6%
	% Undecided on Goal	7%	9%	8%	10%	9%

Data Definitions: All counts & percentages reflect the student's primary educational goal as indicated on their first application.

Note 1: Percentages do not sum to 100% because the Transfer category also includes some degree seeking students.

# 81% placed below college level '10-'12.

<b>Placements January 2010 to December 2012</b>				
<b>MATH</b>				
<b>TOTAL TESTS TAKEN</b>	<b>PLACEMENT AND PERCENTAGES</b>			
<b>MATH 2010</b>	<b>MATH 811</b>	<b>MATH 110</b>	<b>MATH 120</b>	<b>MATH 125, 130, 140, 200, and 241 Transfer Classes</b>
2033	732	622	304	261
	36.01%	30.60%	14.95%	12.84%

# Full Time vs. Part Time

- We have 6 full time math instructors: Rich Follansbee, Michael Hoffman, Denise Hum, Evan Innerst, Ray Lapuz and Po Tong (Fall 2013)
- Full timers teach 36% of units and 31% of the classes
- There are at least 14 part-time Math instructors in a given semester:
- PT instructors include Adam Fahey, Teresa Zemla, Hongyan Meng, Tai Nguyen, Radu Toma, Judy Choy, Vera Klimkovsky, Rama Akkaraju, Alpona Banerjee, Elena Ivanova, Kazumi Tsuchiyose, David Monares, Danielle Ta, Bob Hanhan,
- In the learning center we have instructional aide Parvaneh Darafshi and many student tutors.
- Growing SI program.



# Math Department Activities

On-line classes are offered in elementary algebra, intermediate algebra, statistics, and math for allied health. The first on-line math classes were offered in 1998



Math 200



Math 110

Math 111

Math 112



Math 120

Math 122

Math 123



Math 818

# Math Department Activities

Collaboration with other departments such as ESL, Astronomy, and Counseling.

## ESL Students + Math

Home

- Surveying Students
- Data
- Outreaching to Students
- Resources



Recently the Cañada College English as a Second Language Department reviewed data that indicated that students who were enrolled in other classes simultaneously with their ESL coursework experienced higher success and persisted at higher rates. For example, according to this data, ESL-only course takers had a fall-to-fall persistence rate of 32.9% compared to 59.7% for students taking other courses alongside ESL. This data was used to make significant changes to the curriculum. The core curriculum had been divided into four-unit skill classes: grammar, writing, reading, and vocabulary. The new curriculum integrated all four skills for a full semester.

## Linking a Laboratory Science with Intermediate Algebra – A Progress Report Denise Hum and Gabe Prochter, Cañada College, Redwood City, CA

### Introduction

Many students struggle with math in general and a large number of our students test into lower levels of math than they expected. The original concept was to integrate laboratory experiments with a math class. The goal was to encourage group work and problem solving around the math to reinforce the math concepts. It was also hoped that some students would be encouraged to consider further study in STEM areas.

### Methods

Denise Hum, a full-time math instructor and Gabe Prochter, an adjunct astronomy instructor, were given non-instructional assignments in the spring of 2013 to determine what math class to link to an astronomy lab class. Astronomy was chosen because of the quantitative nature of astronomy, the hands-on nature of the possible experiments and the fact that at Cañada, the astronomy lab is a separate class and no curriculum revision would be needed for this plan. Working together, Denise and Gabe determined that the experiments in math, with intermediate algebra, the curriculum in the math portion was enhanced with examples from astronomy and the experiments in the astronomy lab were selected and modified to illustrate the math concepts as well as the astronomy concepts. The combined MATH 100 with MATH 100 was scheduled to pilot in the spring of 2013. The classes were scheduled for Tues/Thurs because the independent scheduling of algebra classes has been very popular with the students. In addition, the classes were scheduled in the same room, so that Denise and Gabe could split up the time in a way that worked best for them and the particular experiments being done each week. The pilot had an enrollment limit of 20 and was full by the first day of class. The enrollment on March 1 was 27.

### Student Feedback

"I chose to enroll in the class because it seemed that I was going to have fun doing labs based on the math portions that we do, and it was usually right!"  
"The fact that the math is somehow reinforced in the astronomy portion to make you more prepared to your math class."  
"I like being able to put the equations we learn to use in astronomy, it really feels good to make that connection. It holds my confidence in math."  
"I think working in groups is the only way to do it, when we work together, we all try and get onto the same level of comprehension of what we're doing."

### Things that are working

- ▶ This learning community, combining an astronomy lab and intermediate algebra, does not cost more than the individual classes and offering this in the future is simply a matter of scheduling. The only down side is that the enrollment limit for the algebra class is reduced from 40 to 20 to match the enrollment limit for the astronomy lab.
- ▶ Students enjoy working in groups. They have developed a sense of community and work together both in class and out.
- ▶ Students have a deeper understanding of the math that they are learning.
- ▶ Students like that they can see a use for math outside of math class.

### Struggles

- ▶ Time & attendance – The classes meet from 9:10 am to 12:20 pm on Tuesdays and Thursdays. Regular attendance has been a struggle for students.
- ▶ Timing – Students would like a little more time between learning a math concept and applying it to astronomy.
- ▶ Some students are struggling to see the connection between the math and the astronomy.
- ▶ Students require more background knowledge in astronomy topics since only a few are also enrolled in the lecture course.

### Two Faculty One class



### Conclusions

The students have overall responded positively to this learning community. They like the hands-on math applications and some indicated that it has generated more interest in astronomy. Moreover this is the first semester that we are teaching it as a joint class, it's learned a lot about the way.

### Word Problems Practice

- For each of the problems below:
1. Read the problem twice.
  2. Underline the important information.
  3. Identify any extraneous information.
  4. Draw any diagrams and explain your plan.
  5. Solve it.
  6. Check your answer.



# Math Department Activities

Honors sections have been offered consistently since it started.

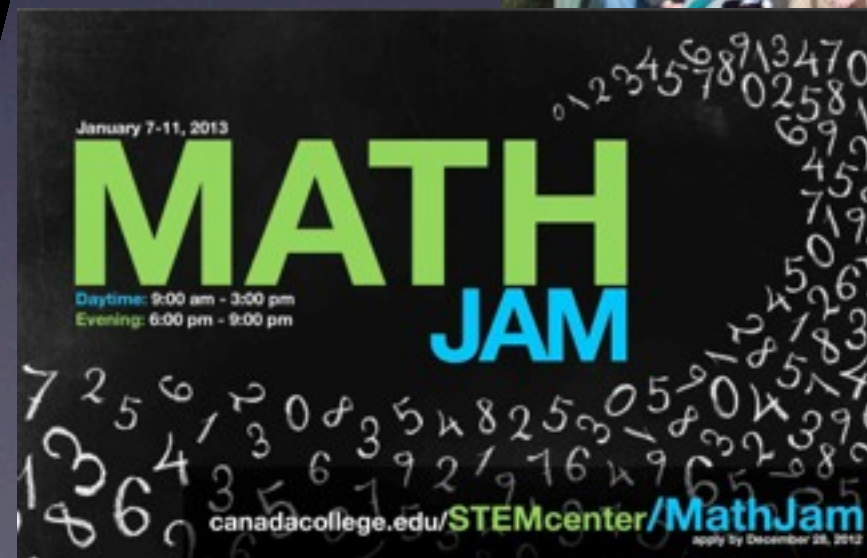
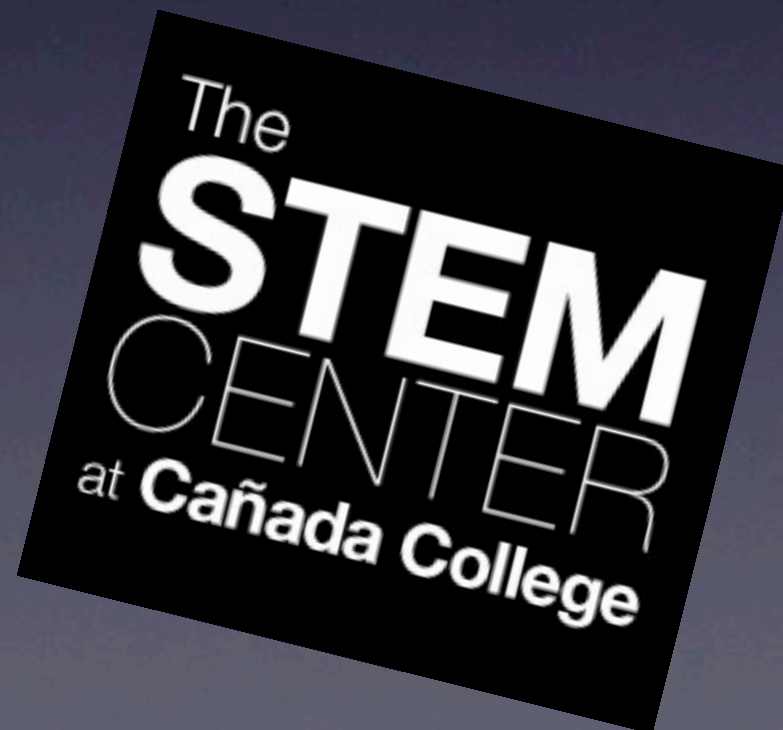


Math 253: Calculus III  
Math 270: Linear Alg.  
Math 275: Diff. Eqn.

# Math Department Activities

Math Jam has been going strong and growing since 2009.

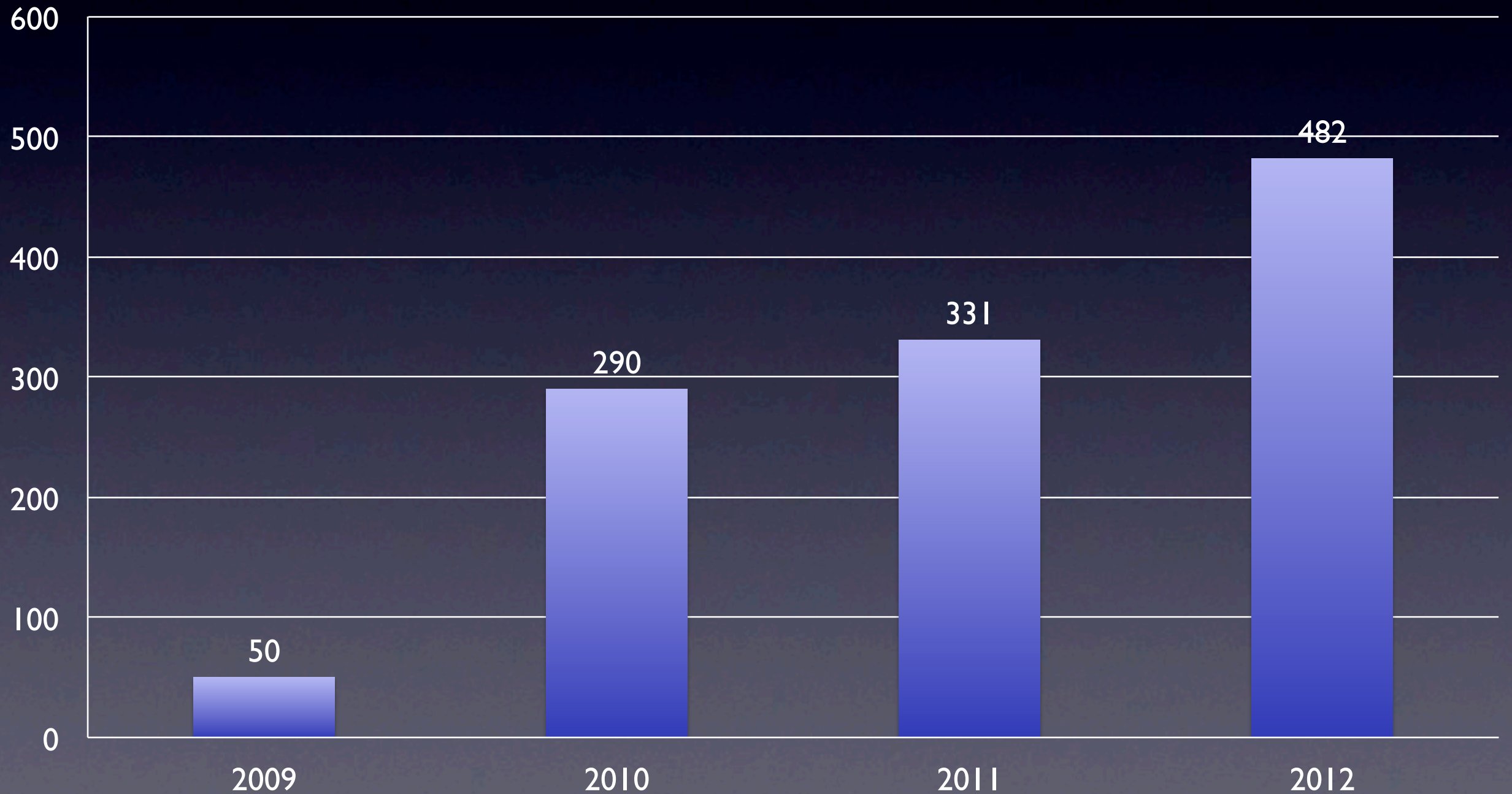
STEM Center





# Growth

## Math Jam Participants



# Math Department Activities

Reorganizing Trig and Precalculus  
sequence (NSF Grants)

NASA curriculum.

Math Jam Curriculum





# Math Department Activities

## Basic Skills:

- ESL collaboration
- Reading Apprenticeship
- Alignment w/Common Core

Factoring Jigsaw  
Break it up and Break it down. MATH JAM! Summer 2011

0	1	2	3	4
5	6	7	8	9

12 14

Name: \_\_\_\_\_

♠: Quadratic Trinomials Pick two problems to demonstrate to your home group. How could one identify type of problem in the future?

1. Factor completely and Check answers by multiplying!

(i)  $x^2 + 5x - 14$

(ii)  $2x^2 + 11x + 15$

The Calendar Round and How It Worked

seating of Cumku (the last day of Kayab)



# Math Department Activities

Accelerated STEM Paths:  
algebra/trig/precalculus

**Accelerated Algebra: Math 110 and 120 in one semester**  
(42967 and 31349)

- Math 110/120: [Syllabus \(.pdf\)](#) [Syllabus \(.docx\)](#)

**Handouts**

- [Getting started in Math 110/120](#)
- [Instructional Materials](#)

**Oriental**

Because the accelerated path requires more effort to attend.

Monday January 14, 2019

**Fast Track TO CALCULUS**

Two courses, one semester.

Math 110 Analytical Trigonometry (CRN 42967) 4 units  
Math 122 Pre-Calculus (CRN 40559) 3 units

You can complete both trigonometry and precalculus in just one semester! Get access to additional support and tutoring to help you focus on learning math. Students enrolled in Math 110/120 now and we will enroll you in Math 122 when classes begin. For more information, please contact Denise Hunt at [hunt@sonoma.edu](mailto:hunt@sonoma.edu).

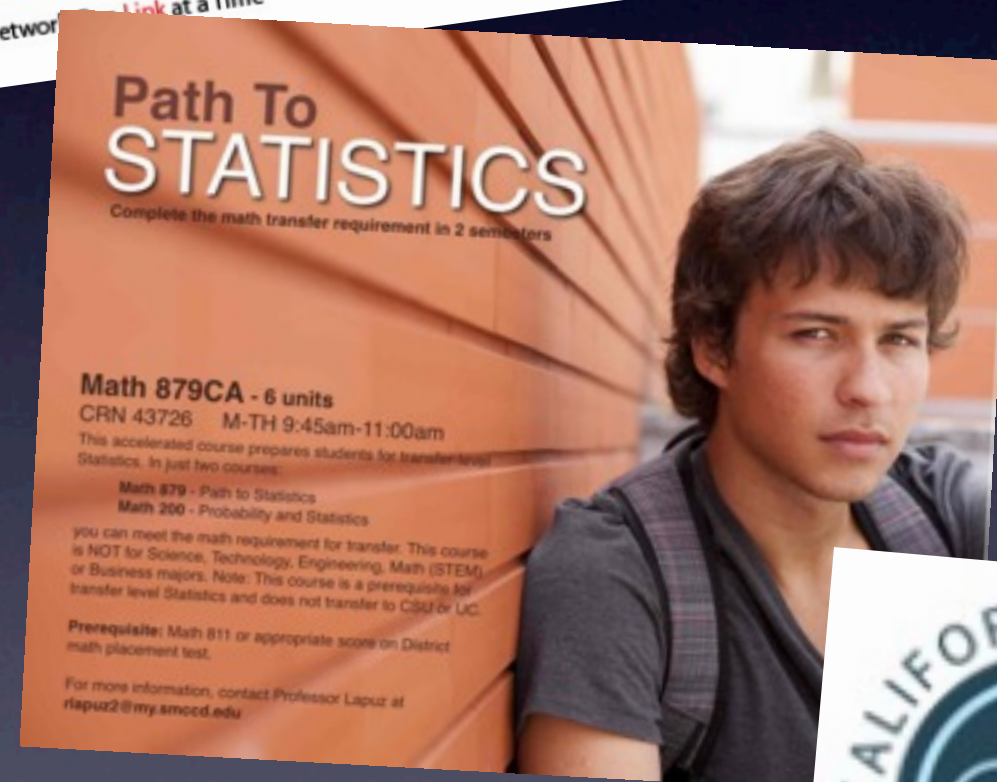
[sonomacollege.edu/STEMcenter/FT2C](http://sonomacollege.edu/STEMcenter/FT2C)





# Math Department Activities

Acceleration Initiative:  
Path to Statistics



# Math Department Activities

Math Club.





# Department Initiatives

In recent years our focus has been on improving our success in the basic skills courses and we will continue to try and improve our results.

- Mastery level testing
- Increased student contact hours
- In-class tutoring (SI)

We are constantly trying to improve retention and success of the STEM students

- STEM Center and MathJam
- Acceleration

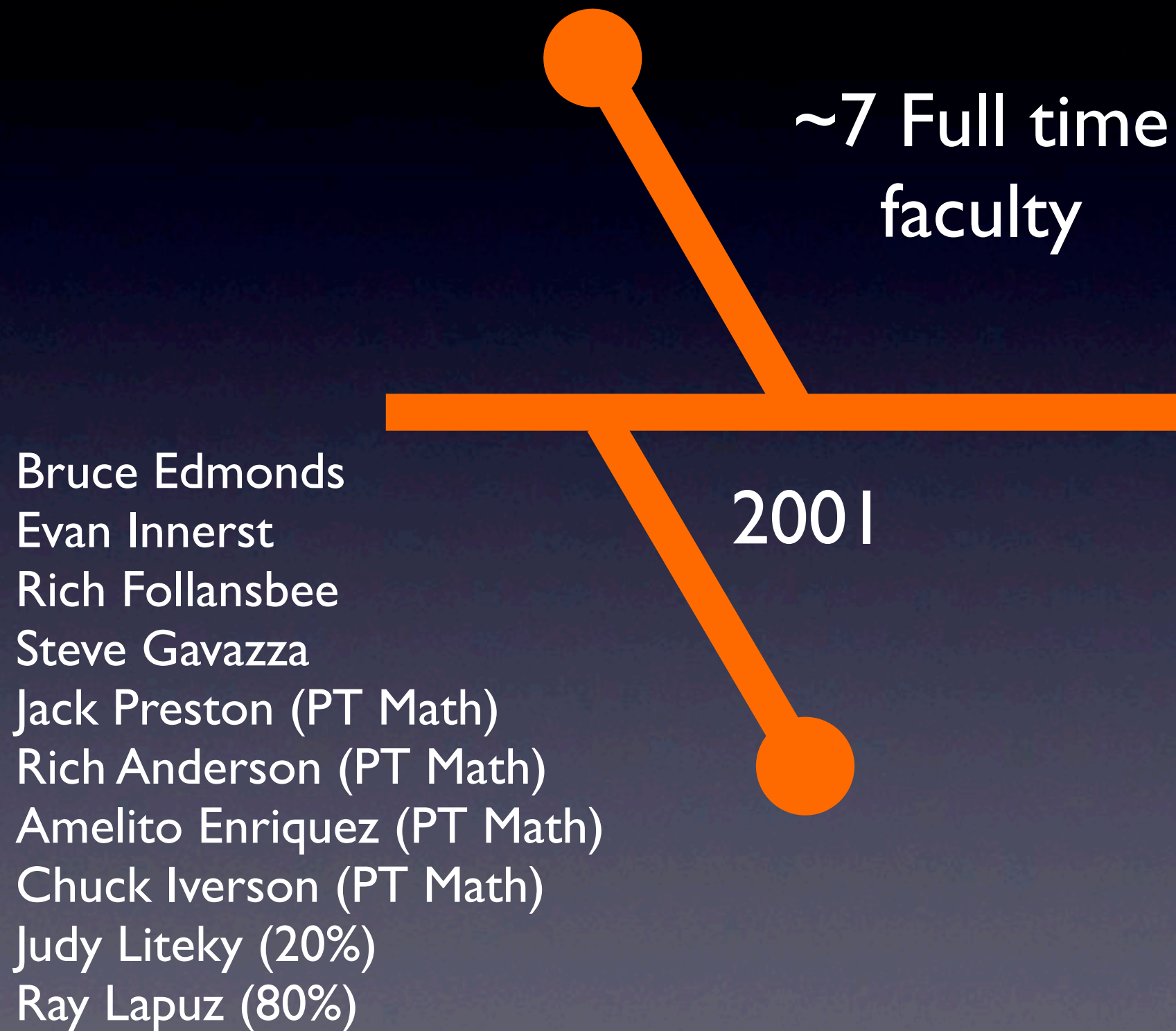
Most of our other transfer students take statistics

- Path to Statistics

- To be successful and carry out all of these initiatives, we need additional full-time faculty
- Without a new hire, we will continue to pursue these goals, but at a significantly slower pace



# Evolution of the Math Dept

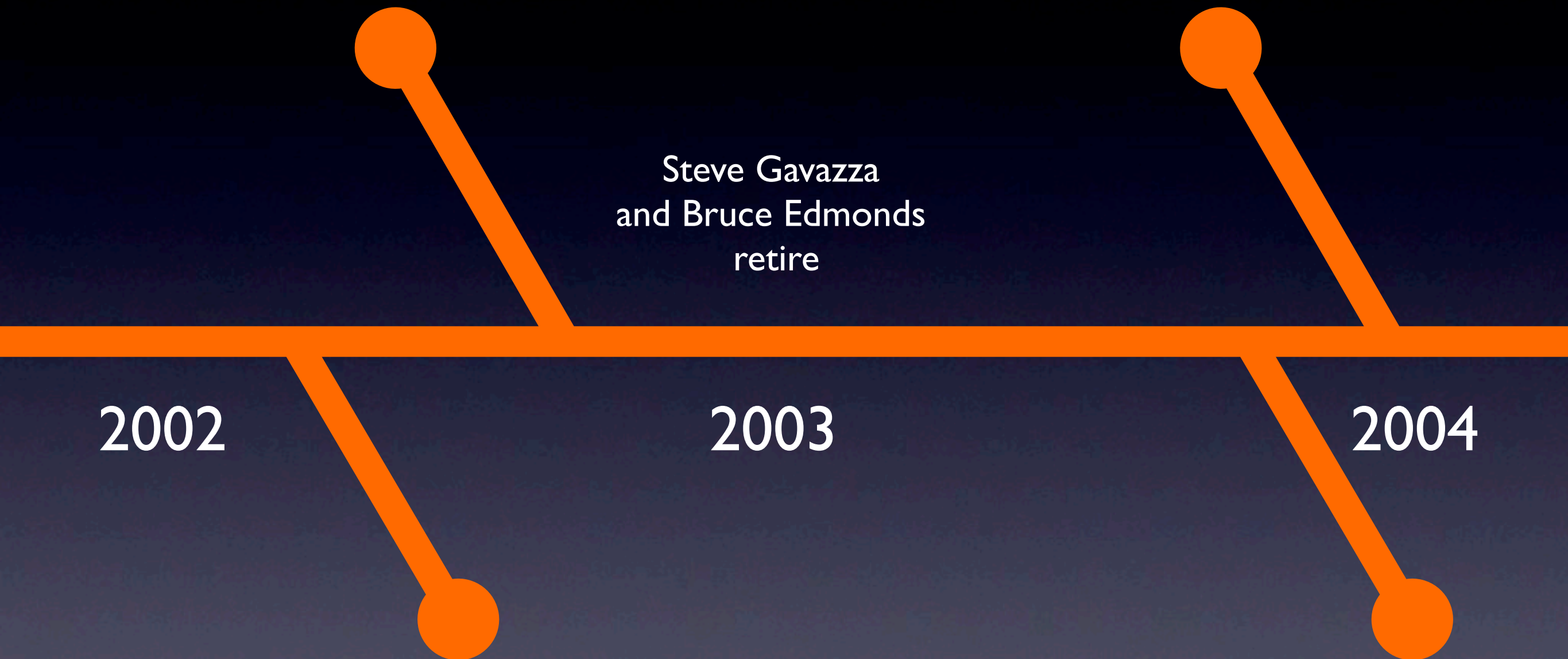


2002

2003

2004

Steve Gavazza  
and Bruce Edmonds  
retire





2005

2006

2007

Rich Anderson  
retires  
May 2006

Judy Liteky  
retires  
May 2007

Denise Hum  
Hired  
Aug 2007



# AS degree now requires MATH 120

Position justification presented to CPC Fall 2010

Jack Preston retires  
May 2008

Spring 2008 is last semester  
Dr. Enriquez was available  
to teach math

**MathJam!**  
Begins in 2009



2008

2009

2010

Position justification presented to CPC Spring 2010

**denied**

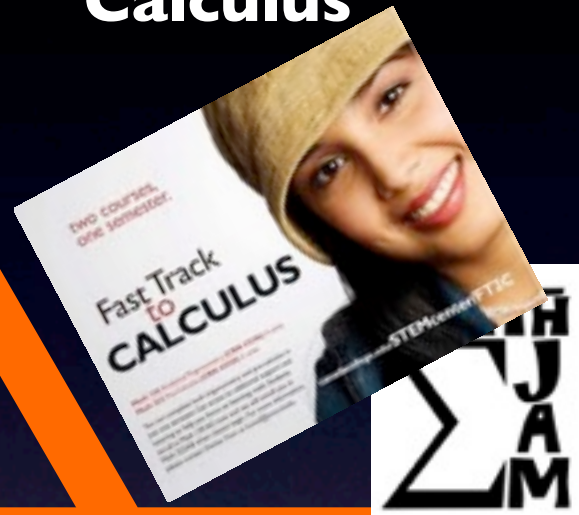


31% of the classes are taught by full time faculty

## Path to Statistics Initiative



## Fast Track to Calculus



Chuck Iverson Retires  
Dec 2012

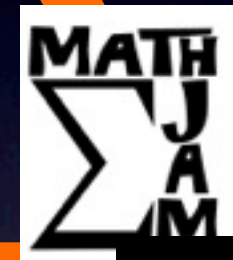
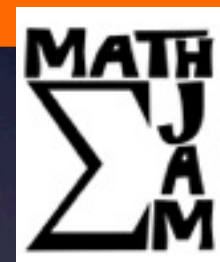
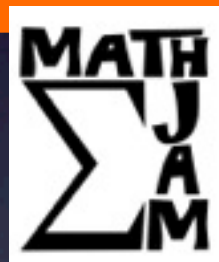
2011

Michael Hoffman  
Hired  
Feb 2011



2012

Po Tong Hired  
Fall 2013



The  
**STEM**  
CENTER  
at Cañada College

Evan Innerst  
Rich Follansbee  
Ray Lapuz  
Denise Hum  
Michael Hoffman  
Po Tong

**6 Full Time Faculty**

2014

2015

2016

???

**Hired  
2014**

