



# MATHEMATICS Department 2014-2015 Hiring Justification

## CRITERIA FOR USE IN DEVELOPING PROPOSALS FOR FACULTY HIRES

### A. Department/Discipline/Program Criteria

1. Identify current Comprehensive Program Review (in cycle) and current Annual Program Plan documents with position need and justification in the annual plan.

Comprehensive program review was completed in 2010 and presented to the curriculum committee on April 27, 2010. The program review has been posted to the IPC sharepoint. The most recent annual plan, filed in March 2013, identified a need for 1 – 2 more full time math faculty.

2. Identify specialized knowledge (area expertise) or training needed for the discipline/program.

Specialized knowledge beyond the standard FSA is not needed.

3. Identify extraordinary program development and/or needs (for example: are there laboratory oversight, industry connections, student mentoring, etc.).

- In recent years our focus has been on improving our success in the basic skills courses in order to get more students to the transfer level classes. Over the past 5 years the number of students whose goal is transfer has gone from 768 in Spring 2009 to 1105 in Spring 2013, an increase of 44% !

**Table 5. Student Goal Orientation**

Department	Metric	Term				
		Spring 2009	Spring 2010	Spring 2011	Spring 2012	Spring 2013
MATH	Transfer (w/ or w/o Degree)	768	788	946	1097	1105
	Career Dev (Degree, Certificate, License)	163	194	219	264	253
	Educational Development	108	186	198	197	195
	4 Yr College Student attending Cañada	185	171	116	85	81
	Undecided on Goal	124	121	152	157	130
	% Transfer (w/ or w/o Degree)	56%	53%	58%	61%	63%
	% Career Dev (Degree, Certificate, License)	12%	13%	13%	15%	14%
	% Educational Development	8%	13%	12%	11%	11%
	% 4 Yr College Student attending Cañada	13%	12%	7%	5%	5%
	% Undecided on Goal	9%	8%	9%	9%	7%

**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.

Although their goal is to transfer many of the students need to start in remedial courses. To meet their needs we plan to

- Continue to offer and improve the accelerated pathways.
- Continue to offer and improve accelerated algebra.
- Continue the overhaul of Math 811. So far we have
  - implemented mastery level testing
  - raised the grading scale (80% for C, passing)
  - increased contact hours (2 lecture and 3 lab hours per week).
- We continue to expand the use of calculators and computers in the curriculum and this work needs to continue.
- We offer classes in a variety of formats, including on-line classes, learning communities, and honors sections. In addition we have created both Path to Stats and Fast Track to Calculus classes designed to accelerate the paths to Statistics and Calculus. We have now offered these accelerated paths for over a year and continue to improve them. The Path to Stats is becoming increasingly popular and will require more instructors trained to teach it.
- We have successfully developed and implemented the MathJam program and this needs continual monitoring of outcomes and program needs. The MathJam program continues to grow.
- Many of our basic skills classes and some of our transfer classes use an on-line homework system. The use of this system needs to be carefully evaluated and (if warranted) expanded. We have also begun looking at some free online homework systems but these are not as polished as the publisher created ones and require more instructor time to make them work for our students. Also accessibility of the online systems is a problem that needs to be addressed.
- Basic skills classes have recently adopted textbooks that are more application based and faculty development is needed to improve use of these books.

All of these programs require full time faculty involvement and we currently only have 6 Fulltime Faculty.

#### 4. Describe PT/FT faculty needs for the discipline/program.

We have 6 full time math instructors: Rich Follansbee, Michael Hoffman, Denise Hum, Evan Innerst, Ray Lapuz and Po Tong.

Adjunct 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, and Danielle Ta.

In the learning center we have Catherine Lipe and Frank Austin.

This fall, only 38% of the units taught in the math department and 38% of the classes are taught by full time faculty. Several areas of importance, including elementary algebra, intermediate algebra and statistics are taught almost entirely by adjunct faculty. Although our adjunct faculty are some of the best, it is important to have a fulltime faculty presence in these areas.

Starting this fall Michael Hoffman will be given release time to coordinate the ACES committee and will not be able to teach a full load.

5. Describe any future economic, community or governmental initiatives/mandates this proposal is addressing.

Four years ago the state changed the graduation requirement in math for high school students to intermediate algebra. This necessitated a change in the graduation requirement for math for an associate's degree. The Math Department has set as a goal to improve retention and success rates and this is even more critical as the math requirement is higher.

More recently Common Core was adopted by the state and this will change the nature of what students know coming into our classes. Also, with adoption of the Common Core, the UC system no longer requires Intermediate Algebra as a mandatory prerequisite for all transfer classes. This opens up a number of interesting possibilities for revamping our algebra sequence, which will require full-time faculty member involvement. Denise Hum has been working with CalPass and the high schools to better understand how our classes may need to change due to Common Core.

6. Describe any budgetary implications of the proposal.

The new positions would be funded from Fund 1.

## **B. College Mission and Goals Criteria**

1. Explain how the request supports the goals of the college strategic plan. Make sure to specifically address the strategic directions in the Educational Master Plan for the college (note: when document is finished, this will be hyperlinked).

The mission of the Cañada Mathematics department is to provide a foundation for a liberal arts education and for the study of the sciences. This is accomplished by providing students with a broad range of courses designed to develop basic skills in computation and quantitative reasoning, to meet the transfer requirements for colleges and universities, and to meet the needs of occupational training programs.

Every student has to take math either for basic skills, or transfer, or vocational certificates. Math supports the mission of the college by supporting virtually every academic program on campus.

2. What unmet needs will this position address (student, district, community)?

Since our 2002 Program Review we have had the goal to add one or more math instructors. Our continued goal is to hire at least two full time math instructors. We have hired Denise Hum, Michael Hoffman, Po Tong, and Cathy Lipe (MESA only, not instructional faculty), but lost Steve Gavazza, Jack Preston, Rich Anderson, and Judy Liteky to retirement. Two years ago we lost Chuck Iverson to retirement. He primarily taught computer science, but was the key instructor for Linear Algebra and Differential Equations. Both of these classes are very important for engineering and science majors, and because of enrollments we offer these classes twice a year instead of once a year as we had done in the past.

Even with the addition of Po Tong in the Fall of 2013, we are still lacking the full-time faculty necessary to effectively implement the improvements outlined in section A number 3.

3. How will this position enhance retention and student success?

Every student has to take math either for basic skills, or transfer, or vocational certificates. Math supports the mission of the college by supporting virtually every academic program on campus. The Math Department has set as a goal to improve retention and success rates and this is even more critical as the math requirement is higher. Development of new retention activities will require additional faculty. The six faculty we currently have are stretched thin.

4. Describe how the position supports a pathway to student educational goal completion (certificate and/or degree) or GE transfer certification.

Every student has to take math either for basic skills, or transfer, or vocational certificates. Math supports the mission of the college by supporting virtually every academic program on campus.

### **C. Historical data criteria supporting request.**

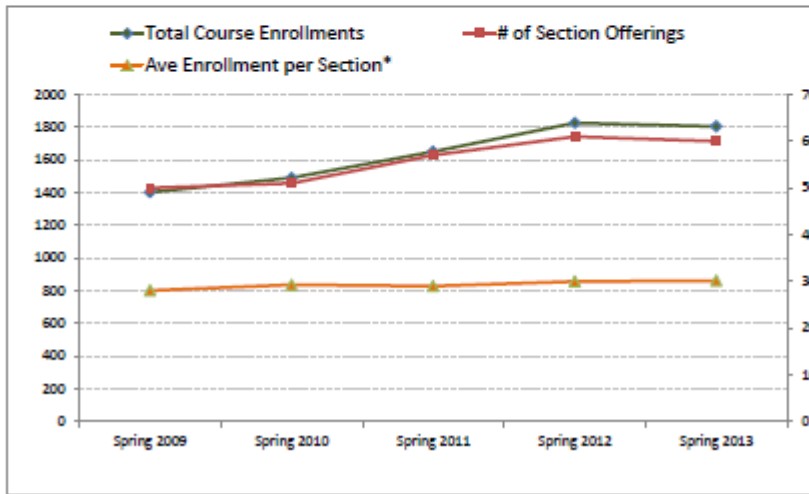
1. Discuss Department/Discipline/Program enrollment and student service trends the proposal addresses.

Since Spring 2009 Student Headcount has increased by 28%, course offerings have increased 31%, and the number of sections offered has increased by 20%. These increases have been filled using adjunct faculty.

**Table 1. Enrollment Patterns & Course Offerings**

Department	Metric	Term				
		Spring 2009	Spring 2010	Spring 2011	Spring 2012	Spring 2013
MATH	Student Headcount	1377	1480	1641	1802	1765
	Total Course Enrollments	1401	1490	1651	1827	1805
	# of Course Offerings	16	16	17	19	21
	# of Section Offerings	50	51	57	61	60
	Ave Enrollment per Section*	28.0	29.2	29.0	30.0	30.1

\*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.  
 Data Definitions: Student Headcount is the count of individual students (no duplicates) enrolled in all courses within the Department.  
 Total Course Enrollments is the sum of all course enrollments (filled seats) within the Department.  
 # of Course Offerings is the number of courses offered within the department for that term.  
 # of Section Offerings is the number of course sections offered within the department for that term.  
 Ave Enrollment per Section is the average number of students per section (Average Class Size).



The number of students in the calculus sequence in particular continues to grow, even as the enrollment of the college falls.

