



# Mathematics Department – 2016-2017 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 most recent annual plan, filed in April 2014, identified a need for 1 – 2 more full time math faculty. The bi-annual plan currently being written identifies the continuing need for additional 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.).

- We offer classes in a variety of formats, including on-line classes and honors sections. In addition we have created both Path to Stats and Path to Calculus classes designed to accelerate the paths to Statistics and Calculus. We want to continue to design accelerated pathways for students taking math classes. This requires consistent time and collaboration.
- We have successfully developed and implemented the MathJam program and this needs continual monitoring of outcomes and program needs. Responsibility for MathJam has been moved to the Learning Center, but math faculty are still invested in the programming and success of this program.
- Students who moved through high school with the new common core curriculum in math will have very different needs than our current high school graduates. We need to prepare for significant changes in our algebra sequence and changes in pedagogy and assessment.

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

We have 6 full time math instructors: Rich Follansbee, Michael Hoffman, David Monnares, Evan Innerst, Po Tong, and Ray Lapuz. We will have 7 by Spring 2017, as we are currently hiring to replace Denise Hum, who left for Skyline.

This spring, 48% of the math classes are being taught by full time faculty. A number of years ago the students asked that (as much as possible) the full-time faculty teach the calculus classes. Given the significant growth in sections of calculus and limited number of full-time faculty, that means that rarely do full-time faculty teach basic skills or statistics classes compared to just a couple of years ago. Not counting the online classes, this fall full-time faculty are teaching 2 out of 12 sections of pre-transfer level math (16%) and 3 out of 10 sections of statistics. Although our adjunct faculty are some of the best, it is important to have a fulltime faculty presence in all levels of math. This is particularly important for program assessment and SLO work.

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

Common core is being implemented at our local feeder high schools. In just a couple years, we will see students coming to us who have only seen the common core curriculum. Our curriculum needs to change to meet their needs. This means a re-vamping of the algebra sequence.

In addition, the Sequoia HS district is opening a new school with a focus on computer science and multimedia. There is a need for collaboration with the HS math faculty at this new school.

6. Describe any budgetary implications of the proposal.

The new position(s) 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.

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)?

The accelerated sequence Path to Statistics is becoming more popular. Since this sequence is 6 units it is difficult to find adjunct instructors that have enough units available and are adequately trained for the class. We hope that the Fast Track to Calculus will follow the same trend. At the same time, the calculus sequence continues to grow and right now all fulltime faculty in the department are used to teach those classes.

In addition, there are several curricular changes that are taking place in California. The middle schools and high schools are changing their curriculum to meet Common Core, and the state academic senate is trying to standardize classes and CID descriptors. All of these changes will require us to modify our curriculum.

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. 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.

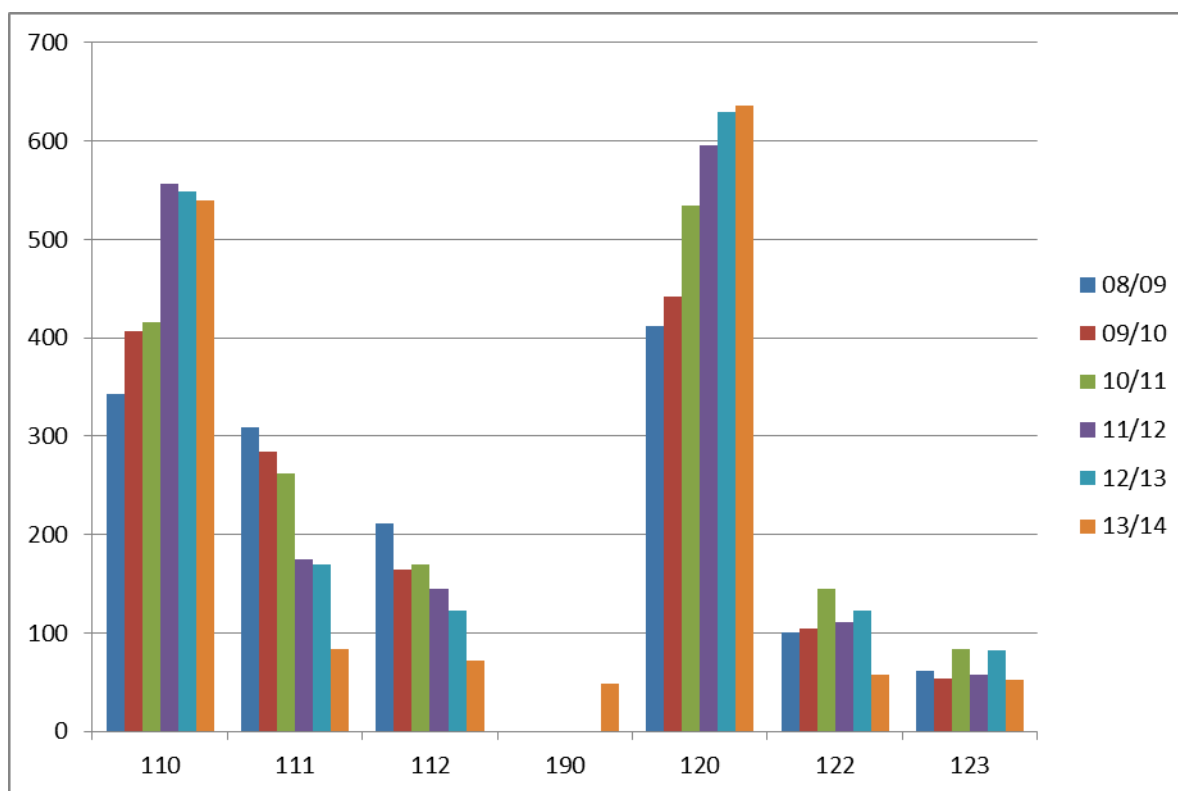
**C. Historical data criteria supporting request.**

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

Enrollment in math classes somewhat correlates with the college as a whole, but the decline in enrollment in the past year is less than the college overall. From Spring 2013 to Fall 2016 there was a decrease in college enrollment of 13.7% and over the same time period math enrollment increased slightly. Interestingly, enrollment across the math department is not affected equally.

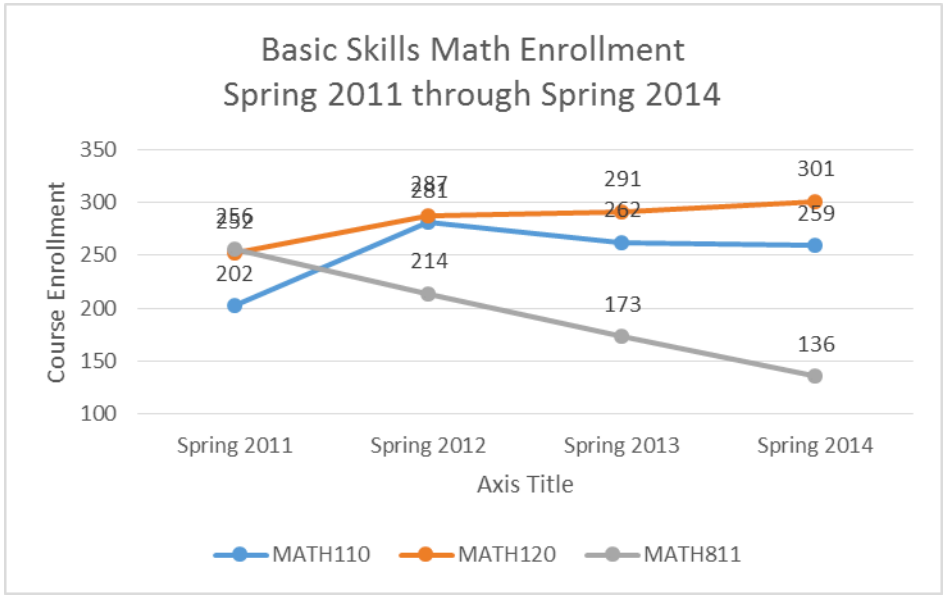
Enrollment in Calculus classes (MATH 251/252/253) and linear algebra and differential equations continue to grow every semester. We now offer (and can fill) sections of the highest levels of math every semester where we used to offer them in alternate semesters. These courses also support growth in the engineering and physics courses. Engineering enrollment has doubled in the past 6 years, while enrollment in physics is up more than 3 fold.

Enrollment in the stretch sequence for MATH 110 (Math 111 and 112) had been declining for years, so we no longer offer the stretch sequence. The stretch sequence for MATH 120 (MATH 122 and 123) has always been low, while enrollment in MATH 120 continues to increase.



Enrollment in MATH 190 (Path to Stats) continues to grow as does the enrollment in MATH 200 (statistics). This is partly influenced by the students placing directly into statistics with multiple measures. Since spring of 2015, enrollment in MATH 200 is up 50% and we now have 10 sections of statistics. We could have more sections if there were faculty available to teach.

Enrollment in MATH 811 (lowest level of math) has been declining for a few years in parallel with the decline in overall enrollment of the college. Enrollment in MATH 110 (2 levels below transfer) has declined slightly, while enrollment in MATH 120 (graduation requirement and 1 level below transfer) remains strong.



The result of these shifts in student course taking behaviors is that the math department offers mostly 5 unit classes. Productivity and fill rates for the department remain high – for Fall 2016 load at census was 635.