



### **NEW FACULTY POSITION PROPOSAL**

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#### **DISCIPLINE: MATHEMATICS**

#### **A. How does the proposed position align with specific objectives within the college's strategic plans and initiatives? <http://www.canadacollege.edu/plans/index.php>**

Mathematics is a key gateway for many students and is required for almost all certificates, degrees and transfer agreements which puts the Mathematics department in a powerful position to impact the success of most instructional programs and the college overall. Luckily, due to certain key strengths of our department, the benefits of additional hiring will immediately be leveraged to advance the goals of The College and The District as laid out in the Educational Master Plan, District Strategic Plan, and Integrated Plan (Equity, BSI, SSSP).

"College Goal 1. Student Completion/Success Provide educational and student services programs that highlight inclusivity, diversity, and equity in their mission to help students meet their unique educational goals and minimize logistical and financial barriers to success."

#### **Engaging mathematics curriculum through research and collaboration**

The math department is committed to creating inclusive and engaging mathematics curriculum for students from a diverse set of backgrounds. We do this through a continual process of researching effective teaching practices and working collaboratively to implement and refine them. We also strive to make mathematics relevant and practical for students through technology, and real-world applications. This is also key component of Equity-minded and student-entered instruction known to help close Equity gaps for women and men of color in mathematics classes.

#### **Clear pathways for students**

We have worked hard to provide clear pathways for students. We have currently developed both a STEM and non-STEM pathway through our entry-level courses that will serve to increase the rate at which students achieve their educational goals. These two initiatives include Math 190 a pre statistics course, and Math 225 a Pathway to Calculus course. Each of these significantly reduces the number of units required to achieve transfer or AA degrees while they provide instruction in a coherent set of competencies that lay a foundation within each pathway.

#### **Success with pre statistics program**

Our department has made significant progress toward improving the percentage of students who complete the remedial sequence and are thus able to enter and complete transferable/degree-applicable mathematics courses. In particular, the intentional growth of our Pre-Statistics (Math 190) program has increased the remedial-sequence completion rate of students placed two-levels below transfer from only 5% reaching Statistics, to 40% reaching statistics. These students also pass Statistics at a higher rate (65%) than their peers who do not take Pre-Statistics (55%).

#### **Co-requisite models**

There are more reforms that we know could further improve these outcomes, including a 'co-requisite model' where students are placed directly into transferable classes with a co-requisite support course. Barriers to implementation include the prevalence of part-time teaching Statistics.

#### **STEM Pathway**

We have a parallel acceleration program within the STEM pathway - Math 225 - which has increased access to Calculus (Math 251) by integrating trigonometry into an intensive pre-calculus class which also integrates contextualized applications/learning. Math 225 is being developed as the foundation of a STEM Meta-major,

incorporating known effective practices for attracting women and people of color to STEM disciplines and thus addressing Equity Gaps in Access for both Mathematics and other STEM course.

"College Goal 3. Organizational Development Focus institutional resources on the structures, processes, and practices that invest in a diverse student population and prioritize and promote equitable, inclusive, and transformative learning."

#### Infrastructure for faculty development

We have built an infrastructure to train and support incoming faculty in implementing learner-centered teaching practices. The Math 190 community of practice consists of regular meetings where common curricular resources are developed and refined, alongside a routine of classroom observations designed to provide deeper insights into student learning. Just last semester, we were able to successfully bring three new instructors to teach pre statistics with minimal outside training. A newly hired adjunct instructor said, when speaking about our community of practice, "Because of the Math 190 team I felt confident about teaching this course. The collaboration in ideas, how to teach with mostly group work, and hearing about how the other teachers handled projects, tests, and activities were instrumental to the success of my class."

#### Mathematics faculty leadership in College Professional Development

Math Faculty also continue to serve as leaders in providing professional development opportunities for the college. Ray Lapuz and Michael Hoffman currently lead the STEM faculty Community of Practice which has engaged faculty from across the division in ongoing efforts to implement research-based effective practices. In Spring 2018 they will be leading a Faculty Learning Program to involve both STEM and Social Sciences faculty in redesigning course content to align with current research in teaching and learning. An additional Full-time faculty member would be trained and supported in expanding these efforts.

#### Participation in GE Pathways

Contextualizing mathematics in its applications to sustainability and social justice has been a key part of our development of Math 190, 200 (Statistics Pathway) and Math 225 (STEM Pathway). Math faculty have therefore been supportive of the GE Pathways program, where we aim to add Math 225 to Math 200 as one of the options under each of the two pathways

"College Goal 2. Community Connections Build and strengthen collaborative relationships and partnerships that support the needs of, reflect, and enrich our diverse and vibrant local community."

#### High-Schools and Adult Education

We are involved in curricular alignment with local high-schools through Cal-Pass Plus and collaborate with ESL colleagues in working with students from local Adult Schools. The loss of Denise Hum has put a strain on this involvement, but it is our intention to stay connected so an additional full-time faculty member would improve our ability to serve this goal.

#### Collaboration with UCs and CSUs

The Math department is currently collaborating with UC Berkeley's Center for Teaching and Learning, faculty from San Jose State and CSU East Bay to implement a Faculty Learning Program which is partnering STEM and Social Sciences faculty to redesign coursework to align with current research on teaching and learning.

#### Bridge Programs and Outreach

Math Jam is central to many of our community engagement efforts, as it on-boards students that may be unfamiliar with college and allows them to accelerate through the mathematics sequence. This is work that hinges on the participation and coordination of our Mathematics department.

## Conclusion

Due to our development of initiatives that directly align with College and District goals alongside our strong professional development routines, we have significant evidence that hiring another full-time math faculty (reducing the PT/FT ratio) will improve success and completion rates and close equity gaps within our department and the college. The Mathematics department at Cañada College is poised to make further gains that are key for the college to advance its Mission and Strategic Goals because an additional Full-time faculty member would be trained and supported in expanding these efforts.

### **B. How does the proposed position address the program's strategic action plans and long-term goals? Please refer to specific elements of the most recent program review.**

The mission of the Cañada College Math Department is to provide a strong mathematical and quantitative foundation for all students: in basic skills, liberal arts education, occupational training programs, and STEM. The department is intimately involved with the highly effective Math Jam program, strongly connected with the STEM Center, and developed and continually improves pathways programs for statistics and calculus. These supplemental services have proven successful.

The department has needs for leadership, collaboration, continuation, and extensions of our curricular offerings and the new math faculty position can expand these programs. This new team member will be supported by the STEM's Community of Practice and will be trained to help address the department's and college's strategic plans to focus on productive pedagogy/andragogy for student learning and success. As mentioned in our program review and described above, the department is aware of the equity gaps and has concrete plans to continue reducing these gaps.

### **C. How does the proposed position support program vitality and viability?**

1. How far is the program from achieving the legislative goal of having 75% of instructional hours taught by full-time faculty?
  - a. %CRNs that are taught by FT faculty: 52% previous semester 54% current semester ☐ not applicable
2. If this proposal is not funded, will there remain a minimum of one existing full-time faculty in the discipline? ☒ Yes ☐ No

### **D. What is the evidence of student demand to justify the proposed position?**

1. Number (headcount) of full-time faculty in the discipline: 7 current semester
2. Total FTE of course offerings: 13.02 previous semester 12.30 current semester ☐ not applicable
3. Percent of "Total FTE of course offerings" comprised by FT faculty: 54% previous semester 57% current semester ☐ not applicable
4. Average departmental Fill Rate: 88 previous semester 91 current semester ☐ not applicable
5. Enrollment history – qualitatively and quantitatively describe student demand/course enrollments within this discipline, especially for those courses that will be assigned to the proposed faculty member.

The enrollment trend for the prealgebra (basic skills) course has steadily gone down from almost 500 in 2010/2011 school year to just above 200 in the present. Meanwhile, enrollments in the transfer level statistics course have risen from 250 in 2008/2009 to over 900 in the present school year. This shows the effectiveness of one of our pathways (path to statistics) with our increased course offerings from 1 in Fall 2013 to 5 sections in Fall 2017.

On the STEM side, the enrollments in calculus and higher courses have increased from 178 in Fall 2012 and have remained steady at about 250 in a semester to Fall 2017. But in the decline of overall math enrollments from 1810 in Fall 2012 to 1492 in Fall 2017, the percentages of STEM students continue to rise from 9.8% to 16.8%.

A new faculty can definitely make an impact in supporting one or both pathways.