Cañada College

ANNUAL PROGRAM PLAN & REVIEW (INSTRUCTIONAL)
ASGC ADOPTED SPRING 2011

The purpose of this document is to collect information to be used by the college planning bodies IPC (Instruction Planning Council), APC (Administrative Planning Council), SSPC (Student Services Planning Council), Budget Planning Committee, and CPC (College Planning Council) and may be used for Program Improvement and Viability (PIV). Through this process, faculty have the opportunity to review the mission and vision of their department/program. Then, using multiple measures and inquiry, faculty will reflect on and evaluate their work for the purposes of improving student learning and program effectiveness. This reflection will identify steps and resources necessary to work towards the program vision including personnel, professional development, facilities, and equipment. *Faculty should use their judgment in selecting the appropriate level of detail when completing this document.*

The deadline for submission of the Annual Program Plan to the IPC is March 31. Complete this document in consultation with your Dean who will then submit a copy to IPC. Members of the IPC review the document and return their comments to the author for use in the next annual program plan.

Cañada College

Mission Statement

It is the mission of Cañada College to ensure that students from diverse backgrounds have the opportunity to achieve their educational goals by providing quality instruction in general, transfer, career, and basic skills education, and activities that foster students' personal development and academic success. Cañada College places a high priority on supportive faculty/staff/student teaching and learning relationships, responsive support services, and a co-curricular environment that contributes to personal growth and success for students. The College is committed to the students and the community to fulfill this mission.

Vision

Cañada College ensures student success through personalized, flexible, and innovative instruction. The College infuses essential skills and competencies throughout the curriculum and assesses student learning and institutional effectiveness to make continuous improvement. Cañada responds to the changing needs of the people it serves by being involved in and responsive to the community, developing new programs and partnerships and incorporating new technologies and methodologies into its programs and services.

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Document Map:

Cañada College

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Note: To complete this form, **SAVE** it on your computer, then send to your Division Dean as an **ATTACHMENT to an e-mail message.**

Department/Program Title: Science and Technology/Mathematics **Date submitted:** 4/12/13

0. Key Findings: Enrollment continues to remain strong in the department. There are increasing numbers of student looking for higher level math classes and decreasing number of students looking for the "slow path" through algebra. Math Jam remains strong and continues to grow – partially funded by the college and partially by grant funding. The department continues to look for ways to improve student success and retention by experimentation with accelerated courses and pathways. There is need to hire 1-2 more full-time faculty in the department.

1. Planning Group (include PT& FT faculty, staff, stakeholders):
Faculty: Evan Innerst, Michael Hoffman
Dean: Janet Stringer

2. Writing Team and Contact Person:
Faculty: Evan Innerst, Michael Hoffman
Dean: Janet Stringer

Contact person: Evan Innerst

3. Program Information

A. Program Personnel
Identify all personnel (faculty, classified, volunteers, and student workers) in the program:

Full-time Faculty:
Evan Innerst
Rich Follansbee
Ray Lapuz
Denise Hum
Michael Hoffman

Adjunct Faculty:
Teresa Zemla
Radu Toma
Judy Choy
Vera Klimkovsky
Rama Akkaraju

Tai Nguyen
Hongyan Meng
Adam Fahey
Alpona Banerjee
Elena Ivanova
Kazumi Tsuchiyose
Po Tong
David Monarres
Yvette Butterworth
Bob Hanhan
Viet Nguyen

Staff:
Nancy Ward
Frank Austin

Student Workers
Too numerous to list

B. Program mission and vision

Include the purpose of the program, the ideals the program strives to attain, and whom the program serves. The program mission and vision must align with the college's mission and goals. (200 word limit)

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.

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C. Expected Program Student Learning Outcomes

Tool: **TracDAT folders in the SLOAC sharepoint.** Click on the link below to access your folder and log in with your complete smccd e-mail account, ex:smithj@smccd.edu and password http://sharepoint.smccd.edu/SiteDirectory/CANSLOAC

List expected Program Student Learning Outcomes (PSLOs) (minimum of 3) and assessment tools for each.

Guideline: List knowledge, skills, abilities, or attitudes upon completion of program or significant discipline work and list assessment tools. Can be copied from Tracdat.

1. Students will demonstrate the ability to use symbolic, graphical, numerical, and written representations of mathematical ideas.

2. Students will use mathematical reasoning to solve problems and a generalized problem solving process to solve real-world problems.

We have come up with a plan to assess the PSLO's in several key classes (math 120, math 252, math 200, and math 275). Math 120 represents the last remedial math class for transfer students and is the graduation requirement for the associates degree. Math 200 is the most popular course take by transfer students. Math 252 is highest level course taken by nearly all STEM majors. Math 275 is the highest level math class we offer. We will be implementing our plan this spring.

Our assessment plan for each of these courses is as follows:

- Common, representative problems will be assigned in each course.
- Each instructor selects examples of student work representing excellent work, satisfactory work, and unsatisfactory work.
- Instructors score representative assignments, assigning 3, 2, or 1 for each PSLO.

Student work is then collected for review by the department

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4. Response to Previous Annual Program Plan & Review

Tool: http://sharepoint.smccd.edu/SiteDirectory/canio/ipc
(log in with your complete smccd e-mail account, ex: smithj@smccd.edu and password)

List any recommendations for the program and your responses to these recommendations based on previous Annual Program Plan and/or CTE Professional Accreditation report.

Guideline: Original documents can be linked or attached, as needed.

No recommendations were given

5. Curricular Offerings *(current state of curriculum and SLOAC)*

All curriculum and SLOAC updates must be completed when planning documents are due.
SLOAC = Student Learning Outcomes Assessment Cycle
Tools: **TracDAT folders in SLOAC** sharepoint http://sharepoint.smccd.edu/SiteDirectory/CANSLOAC
Curriculum Committee http://sharepoint.smccd.edu/SiteDirectory/cancurriculum/

A. Attach the following TracDat and Curriculum data in the appendix:

- List courses, SLOs, assessment plans, and results and action plans (attach report from TracDAT folders in SLOAC sharepoint).

- List courses with COR's over 6 years old (attach documents from Curriculum Committee)

  None – all CORs are within 6 years old, but math 130 will need to be updated later this year.

B. Identify Patterns of Curriculum Offerings

Guidelines: What is the planning group's 2-year curriculum cycle of course offerings by certificates and degrees? What is the ideal curriculum cycle? Discuss any issues.

	Date COR	SLOAC	Semester offered
MATH 811	9/11	yes	every semester, eve, summer
MATH 818	10/09	no	every semester, on-line only
MATH 110	9/11	yes	every semester, summer, on-line
MATH 111	9/11	yes	every semester, summer, eve, on-line
MATH 112	9/11	yes	every semester, summer, eve, on-line
MATH 115	2/11	no	rarely
MATH 120	9/11	yes	every semester, summer, on-line
MATH 122	9/11	yes	every semester, summer, on-line*
MATH 123	9/11	yes	every semester, summer, on-line*
MATH 125	3/11	yes	every semester
MATH 130	10/07	yes	every semester
MATH 140	3/10	yes	every semester
MATH 190	9/12	No	First offered spring 2013
MATH 200	9/11	yes	every semester, summer, eve, on-line, honors
MATH 222	12/09	yes	every semester
MATH 241	12/11	yes	every semester
MATH 242	12/11	yes	spring only
MATH 251	2/10	yes	every semester
MATH 252	9/11	yes	every semester
MATH 253	12/09	yes	spring only, honors
MATH 268	9/11	no	rarely/never
MATH 270	10/11	yes	fall only
MATH 275	10/11	yes	fall only

* Beginning Fall 2013, these classes will only be offered online.

All of our courses are offered every semester with the exception of math 242, 253, 270, and 275. Math 270 and 275 are offered every fall and Math 242 and 253 are offered every spring. Enrollment will not support offering the other classes more than once a year.

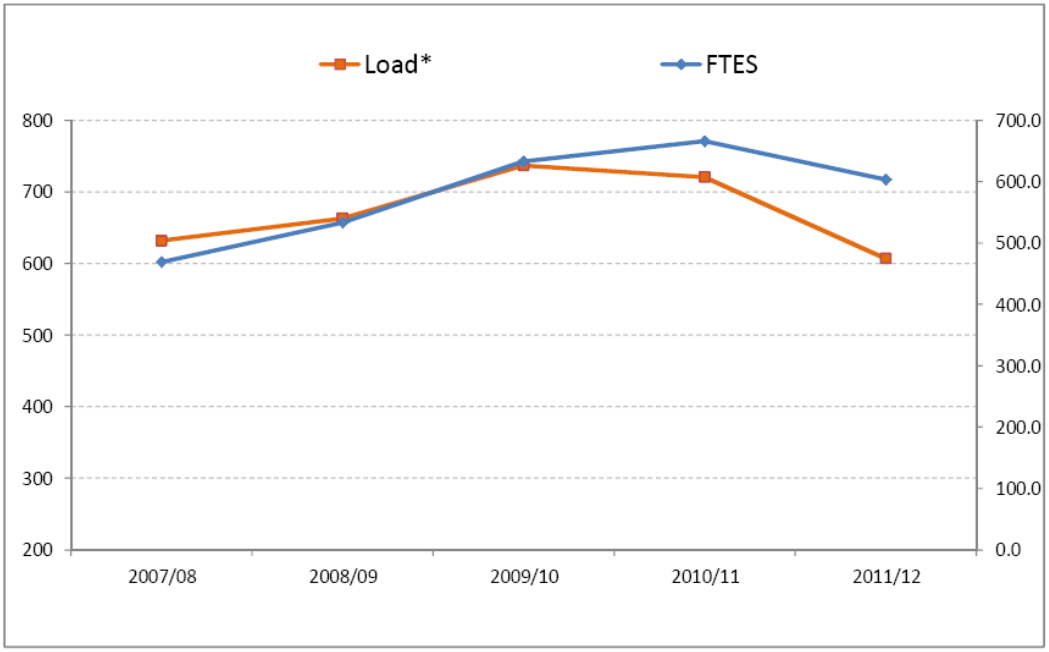
6. Program Level Data

A. Data Packets and Analysis from the Office of Planning, Research & Student Success and any other relevant data.

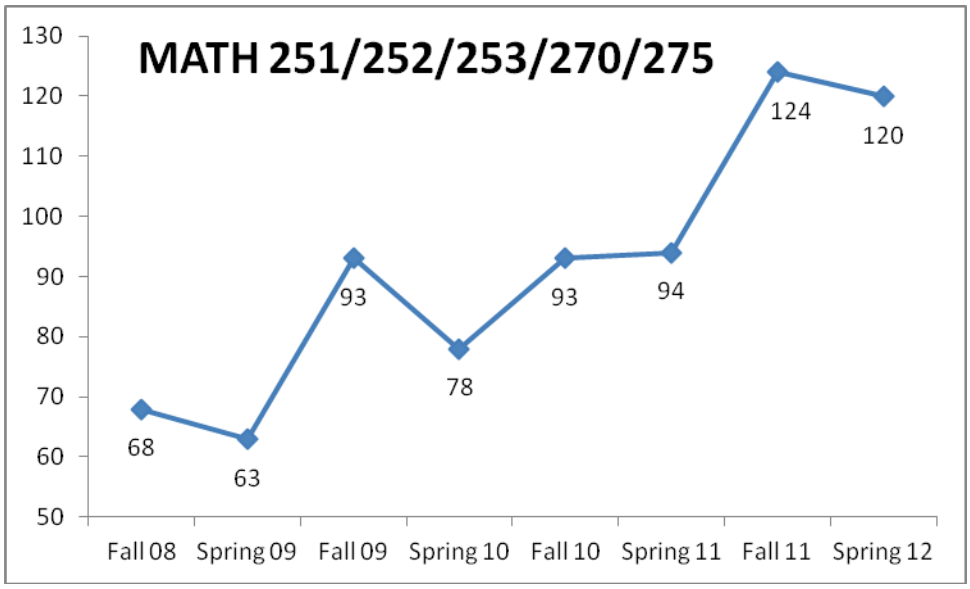
Tool: http://www.canadacollege.edu/inside/research/programreview/info_packet/info_packet.html

Guidelines: The data is prepared by the Office of Planning, Research & Student Success and is to be attached to this document. Include the following:

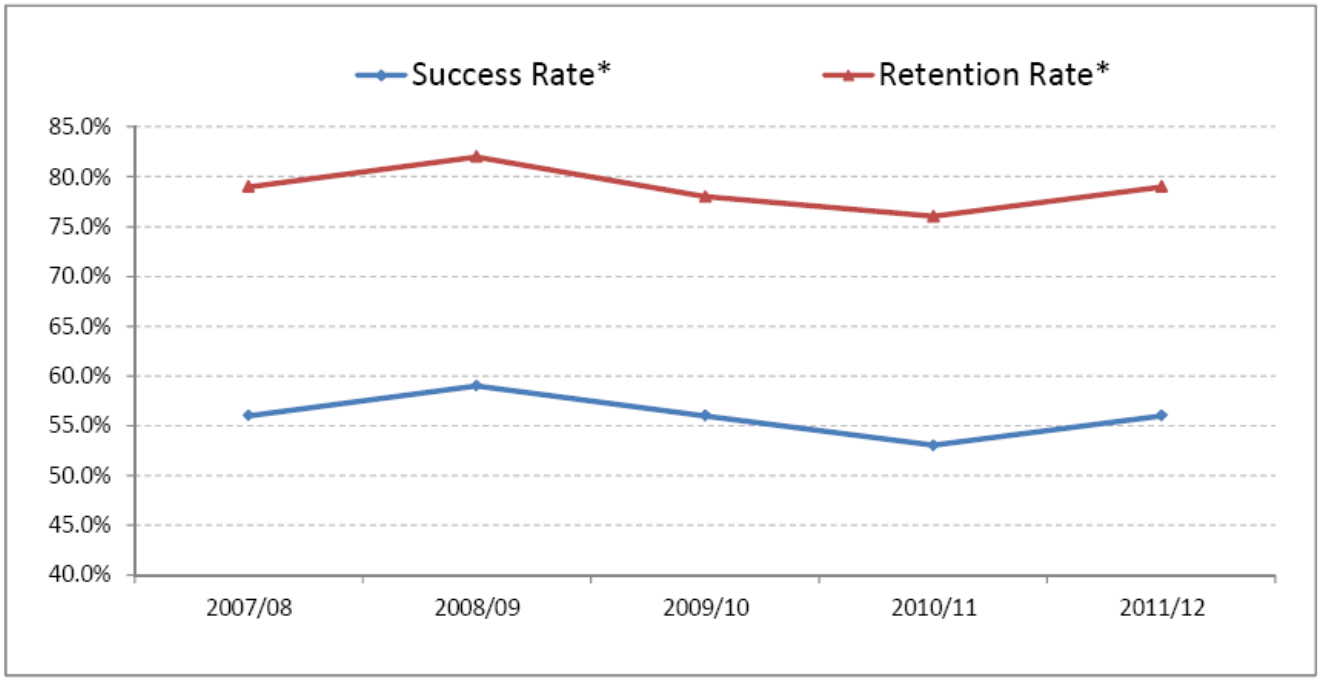
- Describe trends in the measured parameters.
- Reflect and analyze causes of trends.



Over the past 5 years there has been a general increase in both Load and FTES. There is a slight decrease in load in 10/11 and a further decrease in 11/12 due to removal of TBA hours from all of the algebra and statistics classes. The state continued to add reporting requirements and reduced flexibility for the these hours for the evening and on-line classes forcing us to remove these hours from all sections.



We have also seen a significant increase in the enrollment in our calculus classes and have increased the number of section of calculus. This spring 2012 two sections of MATH 251 were offered and in the fall 2012, three sections were offered, including an evening hybrid section. We have also seen a decrease in the number of students enrolling in MATH 111/112/122/123 and have reduced the number of sections of these courses. Starting Fall 2013 math 122 and 123 will be offered only in an online format.



Up until last year there had been a decline in retention and success rates. We think there are several reasons for these trends. First the new graduation requirement of intermediate algebra for the associates degree has put more students in higher level classes than they were before. In addition, enrollment in math classes has gone way up often taking our classes over the posted enrollment limit. This increase in load may also lead to a decrease in success and retention due to instructor resources being spread thin. Economic factors may also be playing a role. As students are forced to change jobs they may not be able to continue in their classes. Although our success rates are more than 10% lower than the college average, they are similar to the state averages in math.

There is some research that show that if pathways to a degree are shortened, then retention and success increase. To that end, the math department has created several programs to accelerate students. Currently we have the accelerated algebra sequence, Path to Statistics, Fast Track to Calculus, and Math Jam which are all designed to help students move through their math requirements more quickly.

We have offered the accelerated algebra sequence for about 3 years, but few students have been able to complete it. The way it is set up allows students to at least get credit for math 110 even if they don't finish math 120, so they don't fall behind in their math sequence. Evan Innerst has been offering it as part of his online math 120 class so it does not require additional instructors.

This Spring Ray Lapuz is teaching a Path to Statistics class. This class takes students who place into math 110 and gets them ready for statistics in one semester. Students reviews are positive and we will be taking a look at the data over the next couple of semesters.

Also this spring Denise Hum is teaching a Fast Track to Calculus class which combines together Trigonometry and Precalculus for our STEM majors. Like the Path to Statistics class student reviews have been positive and many want to sign up for the class in the future.

We have also made some changes to math 811. Michael Hoffman has rewritten the course outline to include 2 hours of lecture and 3 hours of lab. This replaced the 3 hours of lecture and 2 TBA hours, which the students usually failed to complete.

Math Jam has continued to grow and has become extremely popular and successful. By participating in MathJam students can place in higher levels of math or simply prepare themselves to be succesful in the classes they are taking.

B. Analyze evidence of Program performance. Explain how other information may impact Program (examples are business and employment needs, new technology, new transfer requirements)

Tool: **TracDAT folders in SLOAC** sharepoint http://sharepoint.smccd.edu/SiteDirectory/CANSLOAC

Guidelines:
- Explain how the assessment plan for Program Student Learning Outcomes (listed on #3c) measures quality and success of each Program.
- Summarize assessment results of Program Student Learning Outcomes.
- Describe and summarize other data that reveals Program performance.
- Explain how changes in community needs, technology, and transfer requirements could affect the Program.

All of our classes have SLO's and most have been assessed over the past 3 semesters. Most of our SLO's currently measure the abilities of students to solve the various types of math problems they encounter in the class. We have been discussing the idea of creating more SLO's revolving around students ability engage in problem solving, using technology, and attitudes towards math. In the algebra sequence, for example, we have recently changed books and the SLO's do not seem to fit the type of problems found in this series.

C. Other Considerations

7. Action Plan

Include details of planning as a result of reflection, analysis and interpretation of data.

Guidelines:

- Describe data and assessment results for Program Student Learning Outcomes. Analyze and reflect on assessment results for Program Student Learning Outcomes and other measures of Program performance.
- Analyze and reflect on other evidence described in previous sections. Identify the next steps, including any planned changes to curriculum or pedagogy.
- Identify questions that will serve as a focus of inquiry for next year.
  - > Determine the assessments; set the timeline for tabulating the data and analyzing results.
  - > Describe what you expect to learn from the assessment efforts.

Last year, we wrote the following:

- Development and piloting of a Stats Prep class in spring 2013. Denise Hum and Ray Lapuz have committed to the development of a Stats Prep course through 3CSN. There are 2 major models for the acceleration through transfer-level statistics classes and both options are under consideration. There are also faculty at Skyline College working on a pilot model also and this work is a collaborative effort. Both CSU and UC systems have agreed to accept Statistics for transfer if preceded by a prep course and not Intermediate Algebra. This cleared the last hurdle to the development of this program.
  - This class was offered this spring with Ray Lapuz as the instructor

- Path to calculus. With the development of the path to statistics, there will need to be considerable discussion about the path to calculus and ways to accelerate this pathway. A semester length combined MATH 120 and 130 was tried this semester – funded by the Veteran's Bridge to Engineering grant. There has also been discussion by Michael Hoffman and Denise Hum about ways to streamline MATH 130 and MATH 222. These discussion will continue.
  - This class was offered this spring with Denise Hum as the instructor

New for this year

- We are looking at all of our accelerated sequences to see which ones work and which ones need to be modified or discontinued.
- We will be assessing our PLO's for the first time and will need to discuss an action plan based on the data we collect.

8. Resource Identification

A. Faculty and Staff hiring requests

Guidelines:
- Explain clearly and with supporting data showing how hiring requests will serve Department/Division/College needs.
- Include information from the most recent Comprehensive Program Review or Annual Program Plan, whichever was last year's document.

In our last program review we asked for 2 additional faculty positions. One position was granted this fall and we will be hiring a new person this spring. As our offerings continue to grow we will need 1- 2 additional positions in the future.

B. Professional Development needs

Guidelines:
- List faculty and staff professional development activities.
- Describe faculty and staff professional development plans for next year.
- Explain how professional development activities improved student learning outcomes.

The Math department members routinely attend professional development conferences. There is need to develop the skills of more faculty in distance education, particularly in structuring hybrid classes. Ray Lapuz is currently working on certification for distance education through @one. Michael Hoffman attended 2 math conferences this year and took several students with him.

Both Ray Lapuz and Denise Hum are participating in the 3CSN Community of Practice in Acceleration. This state-wide collaboration is meant to assist in the development of accelerated courses, with the goal of increasing student completion rates.

As part of the ongoing ESL/Math collaboration, Michael Hoffman and ESL Instructor Jeanne Gross have participated in a "Reading Apprenticeship" community of practice which has included taking an online course, attending a two-day conference, and presenting their work to colleagues at the '3CSN Links 5' conference.

C. Classroom & Instructional Equipment requests

Guidelines:
- List classroom & instructional equipment requested, including item description, suggested vendor, number of items, and total cost.
- Explain how it will serve Department/Program/Division/College needs.
- List the requests (item description, suggested vendor, number of items, and total cost).
- List special facilities and equipment that you currently use and require.

None at this time.

D. Office of Planning, Research & Student Success requests

Guidelines:
- List data requests for the Office of Planning, Research & Student Success.
- Explain how the requests will serve the Department/Program/Division/College needs.

We need assistance in monitoring the effects of the changes in MATH 811 and the tracking of students who have completed the accelerated algebra sequence. This data will be used to measure the impact of our various intiatives and will be taken into consideration when taking further action.

E. Facilities requests

Guidelines:
- List facilities requests.
- Explain how the requests will serve the Department/Program/Division/College needs.

One request we continue to make is for a testing center for all on-line and hybrid students. This is envisioned as a quiet computer lab, with proctor, to support computerized testing for 40-50 students at a time and would benefit all departments

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Mathematics Department – 2013 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 2012, 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.).

   - We have been expanding 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 StatPath and CalcPath classes designed to accelerate the paths to Statistics and Calculus. We have begun teaching both of these this spring. This work needs to continue.
   - We have successfully developed and implemented the MathJam progam 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.

- Basic skills classes have recently adopted textbooks that are more application based and faculty development is needed to improve use of these books.

- 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 1034 in 2008/09 to 1772 in 2011/12, an increase of 71% !

		Academic Year				
Department	Metric	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 seaking 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 StatPath and CalcPath 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).

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

We have 5 full time math instructors: Rich Follansbee, Michael Hoffman, Denise Hum, Evan Innerst, and Ray Lapuz.

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, Danielle Ta, and Po Tong.

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

This spring, only 36% of the units taught in the math department and 31% of the classes are taught by full time faculty. Several areas of importance, including intermediate algebra, statistics, and the second semester of calculus 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.

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

   Three 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.

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.

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. This goal has not been met and our continued goal is to hire at least two full time math instructors. We have hired Denise Hum, Michael Hoffman, and Cathy Lipe (MESA only, not instructional faculty), but lost Steve Gavazza, Jack Preston, Rich Anderson, and Judy Liteky to retirement. And this year 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.

3. How will this position enhance retention or produce college wide growth?

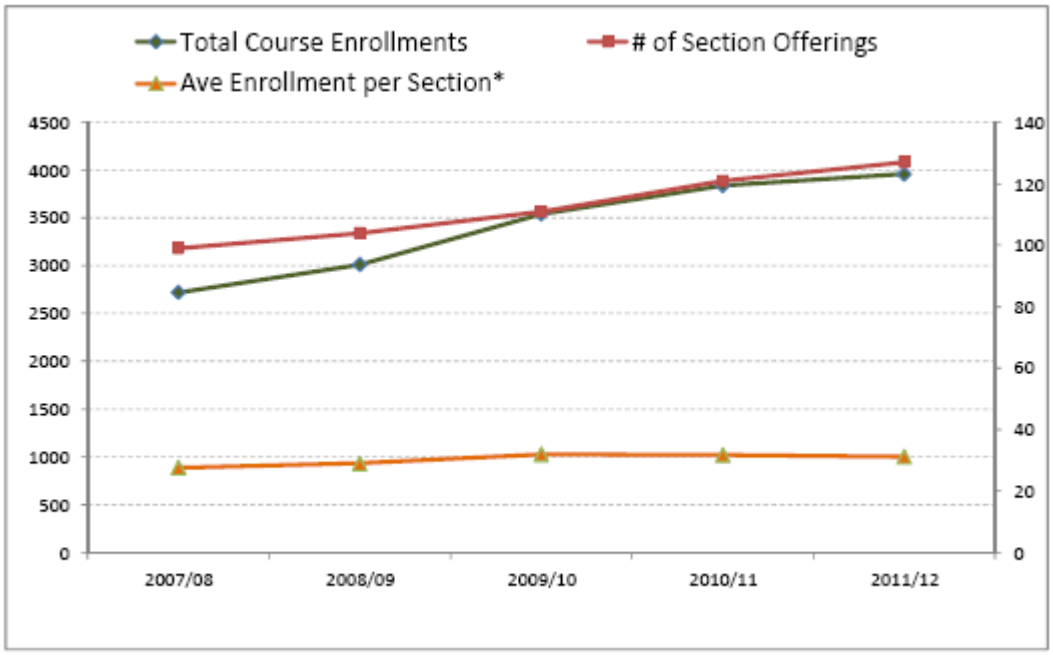
Every student has to take math either for basic skills, or transfer, or vocational certificates. Math supports the mission of the college by supporting virtually every academic program on campus. The Math Department has set as a goal to improve retention and success rates and this is even more critical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



The department continues to grow in the number of sections offered and the total number of students served. These increases have been filled using adjunct faculty.

Statistics from the U.S. Department of Education show that success in algebra is the single best predictor of success in college--not just for engineering and science majors, but for students in all fields.