



PROGRAM REVIEW

Mathematics

Spring 2010

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CAÑADA COLLEGE

COMPREHENSIVE PROGRAM REVIEW SELF-STUDY DOCUMENT

In preparing this Program Review, keep the college mission in mind as a reminder that Program Review is to ensure that all programs are aligned with the institutional mission.

Cañada College's Mission: It is the mission of Cañada College to ensure that students from diverse backgrounds achieve their educational goals by providing quality instruction in transfer and general education courses, professional/technical programs, basic skills and activities that foster students' personal development and academic success. Cañada College accepts responsibility for serving the community's diverse needs for lifelong enrichment and highly values close teacher to student teaching and learning relationships, support services and a co-curricular environment that contributes to personal growth and success for students.

PROGRAM NAME: Mathematics

PART A: Overview of Program

- 1. If the program has completed a previous self-study, evaluate the progress made toward previous goals.**

As part of our 2002 Program Review we had the following goals:

- 1. 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 and Cathy Lipe, but lost Steve Gavazza, Jack Preston, Rich Anderson, and Judy Liteky to retirement.

- 2. Expand the use of calculators and computers in our curriculum.**

For Math 110 and 125, graphing calculators are recommended. With the exception of Math 811 and 140, all other classes require graphing calculators.

All the online classes and some on campus classes use MyMathLab or MathZone as an online homework system.

Math 253, 270/275 uses the Graphing Calculator software and MatLab extensively.

- 3. Evaluate the relevance and effectiveness of the placement tests**

New placement test (COMPASS) has been implemented.

A new MathJam program has afforded students the opportunity of placing at a more appropriate level.

- 4. Increase enrollment in transfer-level courses.**

This continues to be a goal. Math Jam, Accelerated Algebra, and our recent efforts in math 811 are just some of our efforts aimed at getting more students through the algebra curriculum and into the transfer level courses.

The state graduation requirements now necessitate students completing a higher level of math courses. Students are often afraid of math, struggle to succeed, and benefit greatly from remediation and one-on-one support. 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. Our statistics show that retention has improved over the past 5 years while success has remained the same.

The mission of the Canada 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. State the goals and focus of this program and explain how the program contributes to the mission, comprehensive academic offerings, and priorities of the College and District.

5. Continue to offer a variety of math classes from remedial to transfer level in a variety of formats (lecture, self paced, online) and schedules (day, evening, weekend).
- The Math department offers its classes in a variety of formats:
- Online classes include Math 110/111/112, 120/122/123, 200
 - We have offered an accelerated Math 110/120 course.
 - We have been part of the First Year Experience (FYE) learning community with Math 110/111/112
 - This semester we partnered with Astronomy Math 120 with astronomy (Experiencing Math with the Stars).
 - We are now offering a new Math for Health Science class Math 818.
 - Math 253, 270/275 are offered as honors sections. There will also be a section of Math 200 honors starting Fall 2010.
6. Create a math study center near the classrooms in addition to the math lab in the learning center.
- This goal was written prior to the creation of Building 9 and the new learning center, so it is no longer applicable.
7. Put ceiling mounted projectors with computer/video connections in all of the classrooms.
- This goal was met with the renovation of buildings 16, 17, and 18.

Student Performance Profile

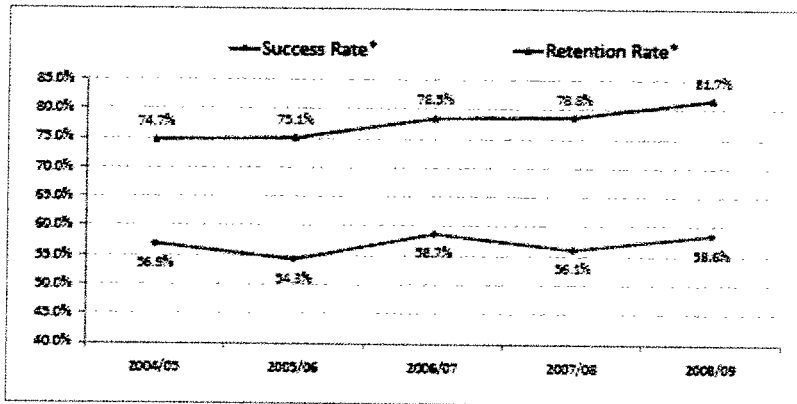
Department	Metric	Academic Year				
		2004/05	2005/06	2006/07	2007/08	2008/09
MATH	Success Rate*	56.5%	54.3%	58.7%	56.1%	58.6%
	Retention Rate*	74.7%	73.1%	78.5%	78.8%	81.7%
	Ave Units Attempted this Academic Year	9.07	9.42	9.37	9.53	9.53
	Ave Units Earned this Academic Year	6.27	6.35	6.75	6.75	6.68
	Ave Academic Year GPA	2.06	2.31	2.38	2.35	2.29
	Ave Cumulative GPA	2.52	2.62	2.65	2.65	2.62

*Color Coding: Cells shaded pink contain values 10% lower than the College average; cells shaded blue contain values 10% above the College average.

Data Definitions:

- Success Rate is the percentage of students receiving a passing grade (A, B, C or CR) relative to all students receiving a grade.
- Retention Rate is the percentage of students receiving any grade other than W relative to all students receiving a grade.
- Ave Units Attempted this Academic Year is the average number of units associated with students enrollment for the Academic Year after the add/drop deadline.
- Ave Units Earned this Academic Year is the average number of course units awarded to the student at the end of the given Academic Year.
- Ave Academic Year GPA is the average current Academic Year GPA of all students taking courses in the department for the given Academic Year.
- Ave Cumulative GPA is the average cumulative GPA of all students taking courses in the department for the given Academic Year.

Student Performance Profile



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

3. If the student population has changed, state how the program is addressing these changes. Document the demographic trends.

Over the past 5 years there has been little or no change in the student population taking math classes. However, there has been a slight increase in the percentage of "Other" ethnicities; this may affect our eligibility to apply for grants.

Student Demographics - Ethnicity

Department	Metric	Academic Year				
		2004/05	2005/06	2006/07	2007/08	2008/09
MATH	African-American	104	85	83	109	103
	Asian or Pacific Islander	270	274	276	268	263
	Caucasian	723	744	690	676	751
	Hispanic	668	727	715	758	853
	Native-American	12	7	7	7	10
	Other Ethnicity	121	154	175	212	241
	Percent African-American	5%	4%	4%	5%	5%
	Percent Asian or Pacific Islander	14%	14%	14%	13%	12%
	Percent Caucasian	38%	37%	35%	33%	34%
	Percent Hispanic	35%	36%	36%	37%	38%
	Percent Native-American	1%	0%	0%	0%	0%
	Percent Other Ethnicity	6%	8%	9%	10%	11%

Data Definitions: Ethnicity category percentages may not sum to 100% due to nondisclosures.

Student Demographics - Gender & Age

Department	Metric	Academic Year				
		2004/05	2005/06	2006/07	2007/08	2008/09
MATH	Female	1104	1152	1129	1104	1228
	Male	785	824	793	883	964
	Less than 20 Yrs Old	686	749	758	818	874
	Between 20 & 29 Yrs old	845	883	854	862	970
	Between 30 & 49 Yrs Old	286	278	261	281	275
	50 Years old & older	81	81	73	69	102
	% Female	58%	57%	58%	54%	55%
	% Male	41%	41%	40%	43%	43%
	% Less than 20 yrs old	36%	37%	39%	40%	39%
	% Between 20 & 29 yrs old	44%	44%	44%	42%	43%
	% Between 30 and 49 yrs old	15%	14%	13%	14%	12%
	% 50 Years old & older	4%	4%	4%	3%	5%

Data Definitions: Gender & Age category percentages may not sum to 100% due to nondisclosures.

1. Describe how the courses offered in the program meet the needs of the students and the relevant discipline(s). (This may be answered through narrative or quantitative evaluation).
- Basic Skills classes – Math 818, 811, 110, 111, 112, 120, 122, and 123 are taken by students to meet requirements for certificates, to meet the graduation requirements for an AA or AS degree, and to prepare for the transfer level classes. Transfer Level classes: We offer a variety of transfer level classes that meet our student's general education requirements or requirements for their major. Most students who just need a class for general education will take Math 140, Math 125, or Math 200. Students who are majoring in Business will usually need Math 125, Math 241, and Math 242. For the engineering, CIS, and science majors we offer Math 130, Math 219/222, Math 251, Math 252, Math 253, Math 268, Math 270, and Math 275.

PART B: Curriculum

4. If the program utilizes advisory boards and/or professional organizations, describe their roles.
- Not applicable

Note 1: Percentages do not sum to 100% because the Transfer category is not mutually exclusive with Degree Orientation.

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

Department	Metric	2004/05	2005/06	2006/07	2007/08	2008/09
MATH	Concurrent	156	187	185	219	220
	No High School Degree	106	112	97	108	121
	High School Degree or Equiv	1434	1484	1463	1516	1690
	Foreign Secondary Degree	79	80	72	47	63
	Post Secondary Degree	124	141	137	150	132
	% Concurrent Enrollment	8%	9%	9%	11%	10%
	% No High School Degree	6%	6%	5%	5%	5%
	% High School Degree or Equiv	75%	74%	75%	74%	76%
	% Foreign Secondary Degree	4%	4%	4%	2%	3%
	% Post Secondary Degree	7%	7%	7%	7%	6%

Student Education Attainment Level

2. State how the program has remained current in the discipline(s).

Mathematics as a subject has not changed much over the years, but the way it is taught has. Our department has always been willing to look at new ways of teaching our courses.

- All of our transfer level classes use graphing calculators, which allows us to focus on the applications of mathematics rather than simple calculations.
- Many of our basic skills classes and some of our transfer classes use online homework systems that get the students to work and rework problems until they get them right.
- Basic skills classes use textbooks that are more application based.

3. All course outlines in this program should be reviewed and, if appropriate, revised every six years. If this has not occurred, please list the courses and present a plan for completing the process.

We have 5 courses that have course outlines older than six years; Math 125, 252, 268, 270, and 275. We have identified faculty to get the course outlines up to date.

4. If external accreditation or certification is required, please state the certifying agency and status of the program.

None

5. Describe how your program is articulated with similar departments within SMCCCD, the Sequoia High School District and/or other four year institutions. (Include articulation agreements, common course numbering etc.)

We recently aligned our course numbers within the district.

6. Discuss plans for future curricular development and/or program modification.

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. We will

- Create more linked classes/learning communities.
- Offer accelerated algebra.
- Overhaul of Math 811
 - Mastery level testing
 - Raised the grading scale (80% for C, passing)
 - Weekly student-led study groups
 - Exploring more options to increase contact hours.

- Annual CMC³ Conference
 - AMATYC,
 - Math Panel – Learned about other math programs (Mendocino, Foothill, and Pasadena)
 - NSpire workshop led by Jack Preston
 - Annual Basic Skills Conference
 - Annual Student Success Conference by the RP Group
 - MERLOT Conference
 - AWM (Association for Women in Math)
 - Courses – Understanding Algebraic Reasoning, Podcasting.
- Our faculty are members of several professional organizations and have attended numerous conferences over the past 6 years.

2. List major professional development activities completed by faculty and staff in this program in the last six years and state what development is needed or proposed by faculty in this program.

All of our instructors are qualified to teach all of our classes.

We have 4 full time math instructors: Rich Follansbee, Denise Hum, Evan Innerst, and Ray Lapuz. In addition we have full time instructors from other disciplines who teach math classes: Amelito Enriquez and Chuck Iverson. Adjunct instructors include Adam Fahy, Marina Gurskaya, Teresa Zemla, Hongyan Meng, Tai Nguyen, Radu Toma, Judy Choy, Vera Klimkovsky, Rama Akkaraju, Alpona Banerjee, Parvaneh Darafshi, Elena Ivanova, Kazumi Tsuchiyose, and Po Tong. Post retirement instructors: Richard Anderson, Judy Liteky, and Jack Preston. In the learning center we have Nancy Ward, Caryn Goldman, Norma Abe, Catherine Lipe, and Frank Austin.

1. List current faculty and staff members in the program, areas of expertise, and how positions contribute to the program success.

PART D: Faculty and Staff

Tracdat printouts attached

2. Update any analysis to include a summary of all years. Attach student learning outcomes here.

No copies found

1. Please attach all Bi-Annual State of the Department reports from the past six years.

PART C: Student Outcomes

3. Describe the departmental orientation process for new full-time and adjunct faculty and staff (please include student workers such as tutors and aides).

The division has a mentoring program that assigns a mentor to new faculty. All math tutors undergo tutor training through a certified program.

PART E: Facilities, Equipment, Materials and Maintenance

1. Discuss the quality and accessibility of the facilities, equipment, equipment maintenance, and materials available to the program. List projected needs.

We currently have

- IT support for computer equipment
- Math Lab
- Math 811 Lab
- Tutoring
- Projectors in the classrooms
- TI calculators from Learning Center, Library
- Software – Graphing Calculator, MatLab

We currently need

- Dedicated Staffed Testing Area (for online and on-campus courses)
- Large computer labs (with 50 computers)
- Computers at the podium in every class
- Computers loaded with math programs.
 - Graphing Calculator program
 - MatLab
 - CourseCompass (proper plug-ins)
 - VTI calculator emulator
- Unobstructed access to white boards.

2. Describe the use and currency of technology. List projected needs.

See above

3. If applicable, describe the support the program receives from industry. If the support is not adequate, what is necessary to improve that support?

None

1. What faculty positions will be needed in the next six years in order to maintain or build the department?
 Over the past 5 years the department has seen increases in enrollments and the number of sections offered. Currently our adjunct instructors teach 60% of our classes. In order to keep up with the needs of the students, update the course outlines, track the student outcomes, and develop the curriculum, we need at least 2 more full time instructors.

Enrollment Patterns & Course Offerings

Department	Metric	2004/05	2005/06	2006/07	2007/08	2008/09
MATH	Unique Headcount	1905	2008	1959	2044	2234
	Total Course Enrollments	2546	2682	2617	2721	3012
	# of Course Offerings	19	19	19	20	19
	# of Section Offerings	54	56	56	60	63
	Ave Enrollment per Section*	47.1	47.9	46.7	45.4	47.8

*Color Coding: Pink cells contain values at least 10% lower than the college average; blue cells at least 10% above the college average.
 Data Definitions: Unique Headcount is the count of individual students (no duplicates) enrolled in any courses within the Department.
 Total Course Enrollments is the sum of all individual section enrollments within the Department.
 # of Course Offerings is the number of courses offered within the department for that Academic Year.
 # of Section Offerings is the number of course sections offered within the department for that Academic Year.
 Ave Enrollment per Section is the average number of students per section (Average Class Size).

2. What staff positions will be needed in the next six years in order to maintain or build the department? (Staff, facilities, equipment and/or supplies) will be needed in the next six years?
 To maintain our current level of staffing, we will need instructional aides when the HSI grant ends.

3. What equipment will be needed in the next six years in order to maintain or build the department?
 Computers to support computerized testing for 40 – 50 students

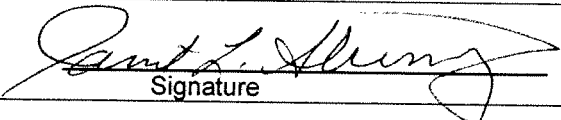
4. What facilities will be needed in the next six years in order to maintain or build the department?
 A quiet computer lab, with a proctor, to support computerized testing for 40 – 50 students.

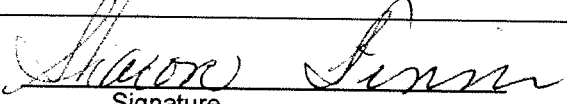
PART F: Budget Request


CAÑADA COLLEGE
PROGRAM REVIEW
INSTITUTIONAL RESPONSE SHEET

Program Name: Mathematics

Thank you for your time and effort in preparing this Program Review. Your Executive Summary, with recommendations, has been sent to the Planning/Budget Committee and the Board of Trustees.

#1. Division Dean	 Signature
Comments:	

#2. Curriculum Committee Chair	 Signature
Comments:	

#3. College Vice President	 Signature
Comments:	