# Signature Page

**MATH-2008**

## I. Team Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Specialty</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

## II. Program Review Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Committee (Chairs)</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derek Wilson</td>
<td>Chair of Budget Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chris Schultz</td>
<td>Curriculum Committee Chair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blaze Woodlief</td>
<td>Educational Planning Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erik Dunmire</td>
<td>Facilities Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yolanda Bellisimo</td>
<td>Institutional Planning Committee/Academic Senate President</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nick Chang</td>
<td>Instructional Equipment Committee (and Other Expenses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sara Mckinnon</td>
<td>SLO Coordinator and Chair of The Program Review Committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joetta Scott</td>
<td>Student Access and Success Committee</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## III. Vice President of Academic Affairs

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nick Chang</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## IV. Board of Trustees President

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillip Kranenburg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I. Program Definition
The Mathematics program at the College of Marin has a demonstrated long and distinguished history of providing the citizens of Marin county and adjacent counties with a variety of high quality courses designed to accomplish the four primary goals set by our department and reflective of the mission and educational goals of the College of Marin. In recognition of the increasing need for mathematics and technology as tools in a societal context, we give emphasis to applied and contextual based problem solving in our courses. This program seeks to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others. Our curriculum provides a strong transfer program, as well as life-long learning courses.

II. Program Purpose

Primary Goal: Degree/Transfer
Secondary Goal: Basic Skills or ESL
Other Goal: Life-long learning

Primary and Secondary Goals Description:
The primary purpose of the Mathematics program is to provide

a) rigorous training for students seeking to transfer to UC/CSU programs in mathematics,

b) a wide variety of courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

Additionally, the Mathematics program provides

c) a variety of courses for those seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world,

d) remedial education for students, both for general education needs and specific vocational requirements, e.g., nursing, business and economics.

The Mathematics program is committed to develop in every one of our students (1) the level of mathematical competence appropriate for their educational goals, (2) an ability to think critically, reason logically, communicate precisely, and apply their knowledge/skills within and outside mathematics, and (3) an appreciation of mathematics as part of human culture.

To advance the mission of its program the Mathematics Department

1. Teaches students to communicate precisely and logically, to discover patterns in various areas of mathematics, and to apply this knowledge within and outside mathematics.

2. Provides a foundation for critical thinking by developing skills in logic and problem solving

3. Organizes its teaching activities to reflect its commitment to educating students with diverse backgrounds and goals, and to making our expertise as professional mathematicians and educators available to the larger
community by offering a broad selection of classes.

4. Seeks to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others.

5. Develops close mentoring relationships among faculty and students through classes of various size, self-paced and distance-learning classes, student-faculty projects, and a drop-in Math lab staffed by mathematics faculty and student tutors.

6. Works continuously to improve our teaching by keeping our pedagogy effective and well-suited to our students; exploring innovations in the field of mathematics and mathematical education.

As defined in the goals of the college, we are responsible for providing the fundamental math courses requisite for our students to transfer as juniors to a four-year university or state college of their choosing. To insure the equivalence of our course content and prepare our transferring majors for academic challenges inherent to universities level study, we maintain a collegial working relationship with colleagues teaching at these four year schools. The feedback that we receive from our four year colleagues at the schools our majors transfer to, Sonoma State University, San Francisco State University, U.C. Berksley, and U.C. Davis to name but a few, indicates that we are accomplishing this primary goal of preparing our students for transfer. We have tried to track the progress of our students after they leave the college of Marin. The information that we receive from those that choose to correspond demonstrates that our students are very successful in their chosen fields of employment and in their efforts to obtain graduate degrees.

The great diversity of our course offerings provides an excellent opportunity for enhancing the educational background of our adult learners and for those individuals that find they are in need of specific training or information that we can teach them. We have designed courses specifically targeted for basic-skills learners. At the remedial level, the math department faces two distinct populations: 1. highly motivated adults with specific goals, e.g., nursing programs, transfer, job requirements, and 2. students lacking such motivation, typically fresh from high school, often with a history of failure in math. Therefore, we have put in place two safety nets: the year-long versions of basic mathematics, introductory algebra and intermediate algebra, and their slower versions: two-semester Introductory Algebra (101AB) and Intermediate Algebra (103AB), and the self-paced courses of Basic Mathematics (95AB), Introductory Algebra (101XY), Intermediate Algebra (103XY), and Trigonometry (104XY) taught in the Math lab. We also facilitate our goal of service to basic-skills and life-long learners through our scheduling practices by offering morning, afternoon, and evening sections of these classes.

Two projects are currently under way: 1) restructuring the operation of the Math Lab to improve services and student success, 2) designing additional stretch versions of basic skills classes enhanced with tutoring services and computer support.

III. Students Served

The Mathematics program serves all students interested in mathematics and its applications. These include:

a) students majoring in mathematics in order to pursue advanced study, obtain a career in teaching or in the private sector, or achieve intellectual enrichment;
b) students from majors outside of mathematics who need to acquire mathematical skills in order to be successful in their majors;
c) students seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world; and

d) students requiring remediation in mathematics.

Age distribution: 60% are younger than 24; 32% are in 25-49 age group, 4% are over 50.
There are 54% females and 46% males.
There are 61% white and 39% non-white.
From a sample of 379 students, 94% take mathematics for transfer; 49% for transfer major; 45% for General Ed. Transfer; 6% for personal enrichment.
IV. Program History

In 1975 the Indian Valley campus, then called Indian Valley College (a completely independent academic institution in the same District as the College of Marin) officially opened and offered a full program of Mathematics courses ranging from basic skills (Math 95) through first-year Calculus (Math 124). The discipline also included classes in programming languages, such as Basic and Pascal. Over the next two years an Individualized Mathematics Program was developed and offered self-paced courses in all of the pre-calculus Mathematics (Math 95, 101, 103, 104). The department flourished with approximately 4 FTE faculty and about 3000 students in the college as a whole. Concurrent with this period the College of Marin in Kentfield had about 10,000 students and 12 FTE faculty in Mathematics. The course offerings included all of the above plus third and fourth semester Calculus and Linear Algebra, but no programming classes or a math lab. In the mid-1980's a self-paced Mathematics program was established at this campus as well. In 1985 some of the buildings on the IVC campus were determined to have structural damage. The entire campus was closed and the Mathematics faculty from there came to the Kentfield campus. When the IVC campus reopened within the next couple of years, the full-time faculty from there remained primarily on the Kentfield campus. The mathematics faculty at IVC consisted of part-time faculty and one full-time person, the latter of whom taught classes on both of the campuses. Over the next two decades the program at Kentfield ebbed and flowed with the enrollment of the District, while IVC withered to two or three classroom offerings and a Mathematics lab. The program has remained basically the same since, except the addition of on-line classes and a stretch version of Introductory Algebra in the late 1990's.

The Mathematics program serves all students interested in mathematics and its applications. These include:

a) students majoring in mathematics in order to pursue advanced study, obtain a career in teaching or in the private sector, or achieve intellectual enrichment;

b) students from majors outside of mathematics who need to acquire mathematical skills in order to be successful in their majors;

c) students seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world; and

d) students requiring remediation in mathematics.

V. Attachments

None
I. Program Enrollment

How has this changed?

<table>
<thead>
<tr>
<th></th>
<th>change from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount</td>
<td>Sp07</td>
<td>Sp08</td>
</tr>
</tbody>
</table>

Why has this occurred?

Headcount changed from 1184 to 1119, which constitutes 5% decrease.

We don’t have a definite answer about the reasons. We believe that there are multiple contributing factors, most important of which are out of our control: properly-funded program advertising; properly funded instruction and support services.

How can the positive results be maintained or the negative results be improved?

We believe that enrollment can go up with an extensive advertisement campaign which informs prospective students not just about the college, but specifically advertises math program, its exceptional value and top quality of math faculty and supporting staff.

Enrollment may also be increased if math courses are given a top priority in terms of resource allocation. Other factors contributing to higher enrollment are flexibility of scheduling and curriculum expansion, especially in skills classes. Hiring at least two new full-time faculty will make a difference, as well.

If there are courses you wish to highlight, please describe changes and trends.

In an effort to attract more students into math program we need to consider the following:

a) Math courses should be given a top priority in terms of resource allocation.

b) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95 and to offer Math 95 as a two part course: Math 95A, B for under-prepared students.

c) Changes are needed in cutoff scores from Accuplacer for better placement of students into classes where they can be realistically successful.

d) Having Math Advisor(s) direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

e) Increased diversity and redundancy in scheduling practices with a possibility of adding weekend sections of basic skills classes to accommodate working adults will have a positive impact on enrollment.

f) Increasing the summer school offerings and improving scheduling will improve access to COM for four-year college students and COM’s own students interested in meeting their transfer requirements faster.

II. Faculty Units

How has this changed?

http://programreview.marin.edu/2008/ASReport.jsp (1 of 7)
Why has this occurred?
FTEF changed from 12.697 to 12.631.

The change seems to be a result of a) reduced number of full-time faculty, b) scheduling practices and c) class cancellations in low enrolled courses.

How can the positive results be maintained or the negative results be improved?
We believe that scheduling of math classes should allow students to realistically carry a full time course load with required courses. Classes should be spread throughout the day to accommodate the students' schedules: early morning, prime time, afternoon, evenings and weekends, in a coordinated manner. This will mean adding more sections, especially in basic skills classes (Math 95 through 103) and Statistics.

The situation can also be improved if low enrolled core courses are supported and low enrollment is not a deciding factor for class cancellation. This is essential for keeping the program healthy and serving our students.

If there are courses you wish to highlight, please describe changes and trends.
To improve the situation, we need we need to consider the following changes:

a) Offering a new prerequisite arithmetic course (Math 85) for students not ready for Math 95
b) Change in cutoff scores from Accuplacer for Math 95
c) Having Math Advisor(s) direct students into appropriate level of Math 95 and the rest of the math curriculum
b) Offering Math 95 as a two part course: Math 95A, B for under-prepared students.
d) Offering Math 103 A, B sections every term.

III. Demographic Trends
Demographic Changes
How has the total of Students changed
Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>change from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>decrease by 0.1%</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>increase by 1.2%</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>increase by 0.9%</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>decrease by 0.1%</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>decrease by 1.7%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>decrease by 0.6%</td>
<td></td>
</tr>
</tbody>
</table>
We believe that, considering the demographic and socio-economic situation in Marin county, most white students of Marin county are not considering COM as their choice for post-secondary education. White students at COM are coming predominantly from other counties, as was demonstrated by R. Kennedy in his report to the Academic Senate in February 2008. At the same time minority students are considering COM as an attractive affordable choice.

How can the positive results be maintained or the negative results be improved?

An extensive advertisement campaign which targets and informs a particular ethnic segment of COM prospective students not just about the college, but specifically advertises math program, its exceptional value and top quality of math faculty and supporting staff will be a major contributing factor in attracting an ethnically diverse student population to COM.

The department is considering repeating a middle-school and high-school outreach campaign which will bring secondary education students in contact with COM math faculty and staff and help create an interest in COM as an educational choice for various groups.

To increase the ethnic diversity of student population at COM we need to consider the following:

a) Math courses should be given a top priority in terms of resource allocation.

b) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95 and to offer Math 95 as a two part course: Math 95A, B for under-prepared students. Minority students often fall into an under-prepared group.

c) Changes are needed in cutoff scores from Accuplacer for better placement of students into classes where they can be realistically successful.

d) Having Math Advisor(s) direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

e) Changes in scheduling practice with a possibility of adding weekend sections of basic skills classes to accommodate working adults, will have a positive impact on ethnic diversity.

### Demographic Changes

<table>
<thead>
<tr>
<th>How has the total of Students changed</th>
<th>change from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Sp07</td>
<td>Sp08</td>
</tr>
</tbody>
</table>

**Why has this occurred?**

Gender Distribution Sp07-08

**MALE:** changed from 512 to 529 which constitutes an increase by 3.4%.

**FEMALE:** changed from 626 to 565 which constitutes a decrease by 3.4%.

We don’t have a definite answer to this question. However, we believe that the contributing factors include scheduling of math classes that should allow students to realistically carry a full time course load with required courses. Classes should be spread throughout the day to accommodate the students? schedules: early morning, prime time, afternoon, evenings and weekends, in a coordinated manner. This will mean adding more sections, especially in basic skills classes (Math 95 through 103) and Statistics.
How can the positive results be maintained or the negative results be improved?

To increase the population of female students at COM we need to consider the following:

a) Math courses should be given a top priority in terms of resource allocation.

b) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95 and to offer Math 95 as a two part course: Math 95A, B for under-prepared students. Female students are a majority in an under-prepared group.

c) Changes are needed in cutoff scores from Accuplacer for better placement of students into classes where they can be realistically successful.

d) Having Math Advisor(s) direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

e) Changes in scheduling practice with a possibility of adding weekend sections of basic skills classes to accommodate working adults, especially working women, will have a positive impact on increase in the number of female students at COM.

### VI. Student Retention Rates

**Student Retention Rate Within The Program (All courses combined)**

<table>
<thead>
<tr>
<th>Retention has completed courses (First Census Roster/Final Grade Roster Total)</th>
<th>change from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased by 2.1 %</td>
<td>Sp07</td>
<td>Sp08</td>
</tr>
</tbody>
</table>

Why has this occurred?

We don’t have a definite answer at the moment. But we can say that the factors influencing the situation are mostly outside of math faculty control. We have good retention in the transfer group and in the population taking a stretch version of Introductory Algebra. It is lower in the developmental classes, the reason being low motivation and poor preparation of students.

How can the positive results be maintained or the negative results be improved?

Positive results can be maintained by keeping up the high quality of the program and its delivery, consistency in standards from one Instructor to another, coordinated curricula and SLOs from course to course, which have been the major areas of attention of the math faculty. We have developed and implemented departmental lists of skills and concepts to be mastered at each level of the curriculum, together with departmental finals. We consider them to be important tool to ensure motivation and retention of students in math classes.

Negative results can be improved by considering changes in MathLab operation, curriculum, delivery, advising and counseling of students, especially in basic skills classes.

If there are courses you wish to highlight, please describe changes and trends.
To improve the retention we need to consider the following:

a) Restructuring the Math Lab and enhancing it with technology and giving it reliable budget to provide high-quality tutoring services.

b) Incorporating MyMathLab resource into some lecture sections of math program to support students in developmental classes.

c) Developing hybrid courses to teach developmental classes in various formats and settings.

d) Change in units for current Math 95 with additional 1 hr of lab

e) Offering Math 95 as a two part course: Math 95A, B

f) Offering a prerequisite arithmetic course (Math 85) for students not ready for Math 95

g) Introducing Support System for students taking Math 95 and lower

h) Change in cutoff scores from Accuplacer for Math 95

i) Having Math Advisor(s) direct students into appropriate level of Math 95.

Math 95 and its possible pre-requisite are the classes requiring special attention because there is an on-going increase in the number of students needing remediation in developmental mathematics. This student population often lacks even basic mathematical background and literacy.

VII. Student Success Rates

Student Success Rate Within The Program (All courses combined)


<table>
<thead>
<tr>
<th>change from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sp07</td>
<td>Sp08</td>
</tr>
</tbody>
</table>

Why has this occurred?

Success has increased by 2.6 %

We don't have a definite answer at the moment. But we can say that the factors influencing the situation are mostly outside of math faculty control. We have good success in the transfer group and in the population taking a stretch version of Introductory Algebra. It is lower in developmental classes, the reason being low motivation and poor preparation of students. It is higher in distance-learning classes of the same level. Opinions about higher success rates of online classes differ

How can the positive results be maintained or the negative results be improved?
Positive results can be maintained by keeping up the high quality of the program and its delivery, consistency in standards from one Instructor to another, coordinated curricula and SLOs from course to course, which have been the major areas of attention of the math faculty. We have developed and implemented departmental lists of skills and concepts to be mastered at each level of the curriculum, together with departmental finals. We consider them to be important tool to ensure motivation and retention of students in math classes.

Negative results can be improved by considering changes in MathLab operation, curriculum, delivery, advising and counseling of students, especially in basic skills classes.

We also believe that we need to take a closer look at distance-learning math classes to make sure that the success rates there are measured realistically. Proctored exams seem to offer a solution.

If there are courses you wish to highlight, please describe changes and trends.

To improve the success we need to consider the following:

a) Restructuring the Math Lab and enhancing it with technology and giving it reliable budget to provide high-quality tutoring services.

b) Incorporating MyMathLab resource into some lecture sections of math program to support students in developmental classes.

c) Developing hybrid courses to teach developmental classes in various formats and settings.

d) Change in units for current Math 95 with additional 1 hr of lab

e) Offering Math 95 as a two part course: Math 95A, B

f) Offering a prerequisite arithmetic course (Math 85) for students not ready for Math 95

g) Introducing Support System for students taking Math 95 and lower

h) Change in cutoff scores from Accuplacer for Math 95

i) Having Math Advisor(s) direct students into appropriate level of Math 95

j) Adoption of new text for Math 95, and possibly 101. Align textbooks in all developmental classes.

k) Incorporating a common Final for the 5 unit Math 95 sections, a common final for Math 95A sections and a common final for Math 95B sections.

Math 95 and its possible pre-requisite are the classes that need special attention because there is an on-going increase in the number of students needing remediation in developmental mathematics. This student population often lacks even basic mathematical background and literacy.

VIII. Certificates, Degrees, and Transfer
IX. Justification

Evidence: What data or evidence supports your projected requirements?
We would like to have a stable budget for Math Lab (see Instructional equipment section) to allow adequate tutoring services, computers, software; to offer innovative and flexible curriculum; to develop hybrid classes and web-based classes to improve the variety of delivery modes and settings; to provide opportunities for professional development for faculty to be informed about changes and innovations in the field.

It is imperative that the elimination of programs and class cancellations cease because it has a ripple effect on every program, ours included. We need to be given an opportunity to provide a healthy broad-based liberal arts education to our students, even if classes must run with fewer students.

We offer an incredible value: two years of high-quality, transferable, university level science instruction much cheaper than UC tuition rates. It is the responsibility of our publicity officers to get the word about it out. We would like to see the Math Department and its excellent faculty highlighted on campus and in community mailings.

Increased enrollment, retention and success rates; improved efficiency of instruction; improved learning, especially in basic skills classes; improved placement of students in classes appropriate to their level of preparation can all be achieved through

a) expansion of course offerings, increased redundancy, flexible scheduling, hiring more full-time instructors;

b) more attention given to basic skills classes;

c) redirecting struggling students to other math classes that better suit their level of preparation through advising and counseling;

d) improving support to math students;

e) offering more stretch versions of basic skills classes;

f) expanding and improving efficiency of tutoring in the Math Lab;

g) providing better instruction with the help of state-of-the-art technology in the mathematics classrooms and labs (this will require the purchase on new computers and replacement of outdated ones every three years).

Attachments:

College of Marin Program Review Student Access and Success• AS v.2 June 2008
**I. Projected Course Actions Report**

<table>
<thead>
<tr>
<th>Action</th>
<th>Course ID</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addition</td>
<td>Math 85</td>
<td>Prealgebra</td>
</tr>
</tbody>
</table>

This course will serve as a prerequisite for Math 95.

**II. Projected Certificate/Degree & Other Actions Report**

<table>
<thead>
<tr>
<th>Category</th>
<th>Action</th>
<th>Total Courses</th>
<th>Total Units</th>
</tr>
</thead>
</table>

**III. Attachments**

**Evidence:** What data or evidence have you provided? Please briefly describe.

This course will give an opportunity to students not ready for Math 95 to succeed in Basic Skills classes.

**Attachments:** Description of attachment formats (file type, hard copy, etc.)

College of Marin Program Review Curriculum and Articulation Report• CG v.2 June 2008
## I. Instructional Equipment/Materials Requirements

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of</th>
<th>Support</th>
<th>Application:</th>
<th>Instruction:</th>
<th>Access:</th>
<th>Outcomes:</th>
<th>Assessment:</th>
<th>Evidence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Unit Cost**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Tax</th>
<th>S&amp;H</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1119</td>
<td></td>
<td></td>
<td>500.0</td>
</tr>
</tbody>
</table>

**Expense Item:**

Mathematical Displays and Posters. Binomial distribution and probability distribution generating models.

**Shared With:**

Not to be shared

**One-time Expense:**

One time

**On-going Expenses:**

Additional Justification for this item:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of</th>
<th>Support</th>
<th>Application:</th>
<th>Instruction:</th>
<th>Access:</th>
<th>Outcomes:</th>
<th>Assessment:</th>
<th>Evidence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Unit Cost**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Tax</th>
<th>S&amp;H</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>1200.0</td>
</tr>
</tbody>
</table>

**Expense Item:**

Instructional Software
**Shared With:**
Not to be shared with other departments; to be used in both lecture and lab based mathematics courses.

**One-time Expense:**
One time, with regular upgrades.

**On-going Expenses:**
Additional Justification for this item:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th>#of Support</th>
<th>Application:</th>
<th>Instruction:</th>
<th>Access:</th>
<th>Outcomes:</th>
<th>Assessment:</th>
<th>Evidence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>New</td>
<td>Request 1119 Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Expense Item:**
Desktop Computers

**Shared With:**
Item not to be shared. For use in both lecture and lab based mathematics courses.

**One-time Expense:**
One time with some maintenance.

**On-going Expenses:**
Additional Justification for this item:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th>#of Support</th>
<th>Application:</th>
<th>Instruction:</th>
<th>Access:</th>
<th>Outcomes:</th>
<th>Assessment:</th>
<th>Evidence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>New</td>
<td>Request 1119 Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Expense Item:**
Supplies: boxes of chalk, pens, note pads

---

### On-time Expense:

### Additional Justification for this item:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of Support</th>
<th>Application</th>
<th>Instruction</th>
<th>Access</th>
<th>Outcomes</th>
<th>Assessment</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>New</td>
<td>Request 1119 Students</td>
<td>More than one discipline</td>
<td>Can provide maintenance</td>
<td>Needed for Health &amp; Safety</td>
<td>Has space for equipment</td>
<td>Basic Skills</td>
<td>Cultural Environment</td>
</tr>
</tbody>
</table>

**Expense Item:**
Software for students records (Math Lab)

**Shared With:**
Not to be shared.

### On-going Expenses:

### Additional Justification for this item:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of Support</th>
<th>Application</th>
<th>Instruction</th>
<th>Access</th>
<th>Outcomes</th>
<th>Assessment</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>New</td>
<td>Request 1119 Students</td>
<td>More than one discipline</td>
<td>Can provide maintenance</td>
<td>Needed for Health &amp; Safety</td>
<td>Has space for equipment</td>
<td>Basic Skills</td>
<td>Cultural Environment</td>
</tr>
</tbody>
</table>

**Expense Item:**
Software for Test Generation (Math Lab)

**Shared With:**
Not to be shared.

---

**Unit Cost**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Total Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>250.0</td>
<td>500.0</td>
</tr>
</tbody>
</table>
### College of Marin - Program Review

**Not to be shared.**

#### One-time Expense:

#### On-going Expenses:

**Additional Justification for this item:**

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>New</td>
<td>Request 1119</td>
<td>Students</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Cost</th>
<th>Qty.</th>
<th>Tax</th>
<th>S&amp;H</th>
<th>Total Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200.0</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
<td>1200.0</td>
</tr>
</tbody>
</table>

**Expense Item:**

Record Keeping Computer (IVC Math Lab)

**Shared With:**

Not to be shared.

#### One-time Expense:

Assembly

#### On-going Expenses:

**Additional Justification for this item:**

<table>
<thead>
<tr>
<th>Priority</th>
<th>Funded</th>
<th># of</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>New</td>
<td>Request 1119</td>
<td>Students</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Cost</th>
<th>Qty.</th>
<th>Tax</th>
<th>S&amp;H</th>
<th>Total Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
<td>125</td>
<td>0.0</td>
<td>0.0</td>
<td>375.0</td>
</tr>
</tbody>
</table>

**Expense Item:**

Copy Paper, in reams

**Shared With:**

Not to be shared.
One-time Expense:

On-going Expenses:

Additional Justification for this item:

II. External Funds/Resources

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Source of Funding</th>
<th>Funding Cycle</th>
<th>Funding Duration</th>
</tr>
</thead>
</table>

III. Student Material Fees Funds

IV. Expense Justification

Evidence: What data or evidence have you provided? Please briefly describe.

Computers: Learning software. Computer-aided instruction needs to be expanded to benefit more students in the program, especially in view of our plans to require a lab component in several basic skills lecture sections. The COM math department will install new computers in the Math Lab capable of running computer-aided instructional software to support hybrid basic skills classes and tutoring services. Our plans to introduce MyMathLab components into several lecture sections will allow students to tap into an unlimited resource of practicing and self-testing. This will benefit students who more easily in this setting, than from classroom lecture or tutors.

Math manipulatives. Students in the Math lab will be helped by learning mathematical principles involving manipulatives. It would be beneficial to all students in the science building to be exposed to mathematical ideas presented and displayed on a variety of posters and through our visual means.

Copy paper. The single most important supply item for mathematics is the copy budget. Also, we expect our students to do paper-and-pencil mathematics.

Record keeping computer. The IVC Math lab computer is old and obsolete for record-keeping purposes. We need to keep student records.

Software for testing. The department would like to have testing software available to use computer-generated exams in the Math lab. This will allow to align tests to all changes in the textbook editions, to provide an immediate feedback from a computer-graded test, and to introduce a more coordinated grading procedure.

Supplies. Mathematics cannot be taught without chalk and classroom supplies.

Attachments: Description of attachment formats (file type, hard copy, etc.)
Other Expenses Report

MATH-2008

I. Office Supplies, Materials and Equipment

<table>
<thead>
<tr>
<th>Priority</th>
<th># of</th>
<th>Support</th>
<th>Expense Item</th>
<th>Unit Cost</th>
<th>Qty.</th>
<th>Tax</th>
<th>S&amp;H</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>150</td>
<td>Students</td>
<td>Computer, Printer, and software for test generation, homework grading, record keeping (One for KTD Math Lab, One for IVC Lab)</td>
<td>2400</td>
<td>2</td>
<td>0</td>
<td>0.00</td>
<td>4800.0</td>
</tr>
</tbody>
</table>

Shared With:

- Will not be shared.

One-time Expense:

- A one time expense, but will need to be replaced very 5 years or so.

On-going Expenses:

| Urgent | every Classes | Copying expenses | 20.00 | 100  | 0   | 0.00 | 2000.0 |

Shared With:

- Not to be shared

One-time Expense:

On-going Expenses:

- 100 reams of paper for copying exams, exam solutions, and handouts for mathematics courses. The mathematics department uses a lot of paper.

II. Non-Instructional Expenses
III. Other Student Expense

<table>
<thead>
<tr>
<th>Priority</th>
<th># of Support</th>
<th>Description</th>
<th>Projected Expense</th>
<th>Proposed Fee</th>
<th>Reason for Expense</th>
</tr>
</thead>
</table>

Evidence: What data or evidence have you provided? Please briefly describe.

Attachments: Description of attachment formats (file type, hard copy, etc.)

College of Marin Program Review Other Expenses• CG v.2 June 2008
## I. Program Faculty

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status</th>
<th>Years at COM</th>
<th>Faculty Units</th>
<th>Reassigned Units</th>
<th>Year Retired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen</td>
<td>Maula</td>
<td>Full-time, tenured</td>
<td>6</td>
<td>42.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty: Applied Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership: CRA Trustee. Served on various committees. Acted as Math and Science Club President.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armendariz</td>
<td>Joaquin</td>
<td>Full-time, tenured</td>
<td>21</td>
<td>47.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty: Mathematical Physics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership: Served on various committees.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackburn</td>
<td>Brian</td>
<td>Adjunct, ETCUM</td>
<td>13</td>
<td>13.750</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty: Math Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freedman</td>
<td>Meredith</td>
<td>Temp Pool</td>
<td>2</td>
<td>9.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty: Math Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Golitzin</td>
<td>George</td>
<td>Full-time, tenured</td>
<td>12</td>
<td>36.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialty: Lie Superalgebras</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership: Served on Curriculum Committee.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Goodale  Jayme  Adjunct, ETCUM  11  8.75  00.000

Specialty:
Math Education

Leadership:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacob</td>
<td>John</td>
<td>Full-time, tenured</td>
<td>18</td>
</tr>
</tbody>
</table>

Specialty:
Differential Geometry, Lie Groups, Mathematical Physics

Leadership:
Served on various committees. Former department Chair.

Jaeschke  Sara  Adjunct, ETCUM  11  8.25  00.000

Specialty:
Math Education

Leadership:

Kostyrko  Jacek  Adjunct, ETCUM  11  6.25  00.000

Specialty:
Math Education

Leadership:

Lansing  Ira  Full-time, tenured  33  47.00  00.000

Specialty:
Statistic, Math Education

Leadership:
CRA Trust Board UPM Executive Council Advisor

Monteith  Anthony  Part-time, RETCUM  31  05.000  00.000  1

Specialty:
Statistics, Mathematics Education

Leadership:
Served on various committees. Former department Chair.

Nelson  Cliff  Temp Pool  2  12.000  00.000
## Specialty:
Math Education

### Leadership:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
<th>Faculty Units:</th>
<th>Reassigned Units:</th>
<th>Year Retired:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordin</td>
<td>Laurie</td>
<td>Full-time, tenured</td>
<td>12</td>
<td>40.000</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

### Specialty:
Statistics

### Leadership:
ASG Advisor
Academic Standards Committee member
College Petitions Committee member
UPM CCC Rep
Served on hiring committees
Department Co-Chair.
Math department Co-Chair

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
<th>Faculty Units:</th>
<th>Reassigned Units:</th>
<th>Year Retired:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psomas</td>
<td>Nick</td>
<td>Adjunct, ETCUM</td>
<td>16</td>
<td>8.000</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

### Specialty:
Math Education

### Leadership:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
<th>Faculty Units:</th>
<th>Reassigned Units:</th>
<th>Year Retired:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roderick</td>
<td>Irina</td>
<td>Full-time, tenured</td>
<td>6</td>
<td>49.500</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

### Specialty:
Partial Diff. Equations

### Leadership:
Served on Curriculum Committee. Currently on hiring committee. Department co-Chair

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
<th>Faculty Units:</th>
<th>Reassigned Units:</th>
<th>Year Retired:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russakovskii Eugene</td>
<td>Adjunct, ETCUM</td>
<td>10</td>
<td></td>
<td>5.00</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

### Specialty:
Linear Algebra, Math Education

### Leadership:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status:</th>
<th>Years at COM:</th>
<th>Faculty Units:</th>
<th>Reassigned Units:</th>
<th>Year Retired:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stewart</td>
<td>Alyson</td>
<td>Adjunct, ETCUM</td>
<td>15</td>
<td>0.500</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>
List all areas of specialty and/or equivalency:

Math Education

### Leadership:

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Status</th>
<th>Years at COM</th>
<th>Faculty Units</th>
<th>Reassigned Units</th>
<th>Year Retired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wang</td>
<td>Andrea</td>
<td>Adjunct, ETCUM</td>
<td>12</td>
<td>8.75</td>
<td>00.000</td>
<td></td>
</tr>
<tr>
<td>Young</td>
<td>Maria</td>
<td>Adjunct, ETCUM</td>
<td>1</td>
<td>5.000</td>
<td>00.000</td>
<td></td>
</tr>
</tbody>
</table>

Specialty:

Math Education

### Leadership:

**II. Instructional Support Staff**

<table>
<thead>
<tr>
<th>Name: Last, First</th>
<th>Purpose</th>
<th># of Supported</th>
<th>Hrs. per wk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crocker, Lindsay</td>
<td>Tutoring</td>
<td>1119 Students</td>
<td>6</td>
</tr>
<tr>
<td>Ezinga, Eddie</td>
<td>Tutoring</td>
<td>1119 Students</td>
<td>6</td>
</tr>
<tr>
<td>Full Name</td>
<td>Clerical</td>
<td>1119 Students</td>
<td>40</td>
</tr>
</tbody>
</table>

**Leadership:**

We need a full-time science and math secretary to support 119 students in math program and share with other science building programs.

<table>
<thead>
<tr>
<th>Name: Last, First</th>
<th>Purpose</th>
<th># of Supported</th>
<th>Hrs. per wk.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jestadt, Jesse</td>
<td>Lab Tech</td>
<td>1119 Students</td>
<td>22</td>
</tr>
<tr>
<td>Lloyd, Sean</td>
<td>Lab Tech</td>
<td>1119 Students</td>
<td>24</td>
</tr>
<tr>
<td>Stupp, Salomon</td>
<td>Tutoring</td>
<td>1119 Students</td>
<td>7</td>
</tr>
</tbody>
</table>

**Leadership:**

### III. Teaching Unit Requirements

<table>
<thead>
<tr>
<th>Teaching Units</th>
<th>Health and Safety</th>
<th>Scheduling</th>
<th>Title 5</th>
<th>Waitlists</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specialty:

Mathematics

**Other:**
This is not a request for additional units, rather for shifting of units from part-time to full-time by hiring new faculty. We currently would need to add two full-time faculty to be in compliance with the rule specifying 75% of our classes be taught by full-time faculty. At the moment, we have over four full-time loads (>60 units) taught by part-timers every semester in our department.

<table>
<thead>
<tr>
<th>Teaching Units:</th>
<th>Health and Safety</th>
<th>Scheduling</th>
<th>Title 5</th>
<th>Waitlists</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.000</td>
<td>☐</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

Specialty:
Mathematics

Other:
We would like to introduce a position of Math Lab Instructor to manage the lab operation and provide tutoring services.

### IV. Projected Staff Requirements

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Hours Per Week</th>
<th># of Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>24</td>
<td>100 Students</td>
</tr>
</tbody>
</table>

Justification:
Math Specialist

### V. Faculty Requirements

1. No full time instructors in the subject area.
2. Non-Availability of part-time instructors in a subject area.
3. Reduction in department Teaching Units as a result of full-time faculty retirements or other significant causes.
4. Recent or forthcoming growth as a result of additional sections of classes to enrollment demands.
5. Temporary growth in department Teaching Units as a direct result of a short-term grant or other interim resource.
6. Current or forthcoming changes that illustrate the immediate need of additional full-time faculty within this department.
7. Program Review findings.
8. Other considerations.

### VI. Attachments

Evidence: What data or evidence have you provided? Please briefly describe.

We currently would need to add two full-time faculty to be in compliance with the rule specifying 75% of our classes be taught by full-time faculty. At the moment, we have over four full-time loads (>60 units) taught by part-timers every semester in our department.

This causes inconsistencies in classes from semester to semester, as well as causing difficulties in scheduling and staffing.

We need a full-time math and science secretary to share between the programs in the science building.

We need to bring the pay of the tutors in the Math Lab to $11.75/hr, which is what tutors are paid elsewhere on campus.

Attachments: Description of attachment formats (file type, hard copy, etc.)
# Facilities General

## MATH-2008

### I. Current Offices
(For the Program/Department, Faculty and Staff)

<table>
<thead>
<tr>
<th>Office:</th>
<th>Use:</th>
<th>Shared Office:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 107</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 108</td>
<td>Faculty, Adjunct</td>
<td>Y</td>
</tr>
<tr>
<td>SC 109</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 110</td>
<td>Faculty, Adjunct</td>
<td>Y</td>
</tr>
<tr>
<td>SC 117</td>
<td>Support Staff</td>
<td>Y</td>
</tr>
<tr>
<td>SC 147</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 148</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 149</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 150</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 151</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
<tr>
<td>SC 152</td>
<td>Faculty, Full-time</td>
<td>N</td>
</tr>
</tbody>
</table>

### II. Preferred Instructional Rooms
(Classrooms, Labs and Instructional Spaces)

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 104</td>
<td>Lecture</td>
<td>10</td>
<td>40</td>
<td>MATH</td>
<td>1410</td>
<td>1630</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 102</td>
<td>Lecture</td>
<td>10</td>
<td>40</td>
<td>MATH</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC 251</td>
<td>Lecture</td>
<td>2</td>
<td>40</td>
<td>MATH</td>
<td>101</td>
<td>1410</td>
<td>1630</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facility has limitations:
- Lack of Smart classroom
- Multiple sections.
<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC177</td>
<td>Lecture</td>
<td>6</td>
<td>120</td>
<td>MATH</td>
<td>101+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0910</td>
<td>1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Room size limitation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facility has limitations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 101</td>
<td>Lecture</td>
<td>1</td>
<td>40</td>
<td>MATH</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1410</td>
<td>1700</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facility has limitations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB 119</td>
<td>Lecture</td>
<td>2</td>
<td>80</td>
<td>MATH</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1240</td>
<td>1500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facility has limitations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 133</td>
<td>Lecture</td>
<td>6</td>
<td>150</td>
<td>MATH</td>
<td>103+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0810</td>
<td>0930</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facility has limitations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB 101</td>
<td>Lecture</td>
<td>4</td>
<td>50</td>
<td>MATH</td>
<td>115</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1810</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of Smart classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 124</td>
<td>Lecture</td>
<td>2</td>
<td>35</td>
<td>MATH</td>
<td>123/12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0810</td>
<td>0900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of Smart classroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room:</th>
<th>Type:</th>
<th>Sections/Year</th>
<th>Students/Section</th>
<th>Subject</th>
<th>Course#</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>R</th>
<th>F</th>
<th>S</th>
<th>U</th>
<th>Start Time</th>
<th>End Time</th>
<th>Fa</th>
<th>Sp</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 130</td>
<td>Lecture</td>
<td>6</td>
<td>160</td>
<td>MATH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facility has limitations:
Program Review

### MATH 223
- **Start Time:** Before 8am
- **End Time:** 0900
- **Facility has limitations:** Lack of Smart classroom

### MATH 95/104
- **Start Time:** 1110
- **End Time:** 1230
- **Facility has limitations:** Lack of Smart classroom

### III. Instructional Support Spaces (Storage, Conference Room, etc.)

### IV. Justification for Projected Facility Requirements

#### Primary Goal:
- Degree/Transfer
- Basic Skills or ESL
- Life-Long Learning

#### Secondary Goal:
- Basic Skills or ESL
- Life-Long Learning

#### Other Goal:
- Life-Long Learning

**Application:** Please indicate how the projected requirements will be applied.

The Math program is currently using the following facilities serving the following number of students annually:

<table>
<thead>
<tr>
<th>Room Number</th>
<th>Number of sections</th>
<th>Average number of students/section</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC101</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>SC102</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>SC104</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>SC115</td>
<td>26</td>
<td>15</td>
</tr>
<tr>
<td>SC124</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>SC125</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>SC130</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>SC133</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>SC177</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>TB101</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>TB119</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>DL101</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>PM251</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>OL156</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>IVC 17,RM100</td>
<td>24</td>
<td>10</td>
</tr>
</tbody>
</table>

We need these facilities to serve the mission of our program.

**Instruction:** How will instruction be improved for Student Learning and Success?

**Access:** How will access be improved for Student Learning and Success?

**Outcomes:** What Student Learning or other outcomes are expected?

**Assessment:** How will the outcomes be measured for future planning?
Evidence: What data or evidence supports your projected requirements?

Attachments:

<table>
<thead>
<tr>
<th>Current Blueprint</th>
<th>Room Plans</th>
<th>Room Chart(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

I. Institutional Excellence. The Board believes that superior results originate in high aspirations. Therefore, the Board's basic and most important goal for the College is to excel in every activity it undertakes. By so doing, it will achieve a position of local, state and perhaps even national prominence.

Objective 1: In its strive for excellence the Mathematics program seeks

a) to provide a variety of courses in a positive and supportive learning environment for a diverse student population seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world, and achieving their individual educational and professional goals and expectations.

b) to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others.

c) to improve our teaching and effectiveness of the program on the whole; keeping our pedagogy effective and well-suited to our students; exploring innovations in the field of mathematics and mathematical education; implementing improved methods in the classroom.

We offer a well-coordinated curriculum interrupted only by a decrease in the allotted units and class cancellations. We conduct the following activities necessary to create and maintain coordinated planning processes for the program:

a) efficient regular communication between the math faculty on the issues of the curriculum, pedagogy well-suited to our students, students' success and retention, scheduling, student learning outcomes and other related matters;

b) efficient data collection and analysis process, research, and budgeting of the program;

c) outreach to and partnership with K-12 educators; tracking students after they leave COM.

All math faculty engage in gathering qualitative and quantitative data from various resources (most importantly students' performance and feedback) and collaborate on goal clarification and performance evaluation of the math program. The department meetings are regular, frequent, and provide a forum for exchange of information and meaningful data analysis. Communication on professional matters among all members of the department is interactive and effective. Our faculty collaborates on curriculum design and review based on gathered qualitative and quantitative data.
The course offerings are reviewed regularly by all members of the department with an aim of designing class schedules that are appropriate for our students and consistent with the level of their educational preparation. The department has evidence that its courses and programs successfully meet the learning needs of students and that they appeal to an appropriately diverse student population and accommodate students with diverse needs (see discussion of retention and success rates and demographics). Math faculty regularly participate in staff development activities both at COM and other professional institutions and implement what they learn in the department.

The department makes sure that courses conform in content, textbooks, and instructional methods to current disciplinary standards and are designed to meet the degree and/or general education needs of students. We work to ensure that math courses are presented with appropriate breadth, depth, rigor, sequencing, time of completion, and synthesis of learning. As part of this process, we maintain regular interdepartmental discussions with physics, engineering, and chemistry, to assure consistency in course content and available offerings.

The department has developed effective measurable evaluation tools built into the curriculum and classroom practices (departmental learning objectives, SLO's, and finals by course; individual student-feedback forms; exit feedback forms, informal graduate surveys, etc.). The department identifies competency levels and measurable student learning outcomes for each course and assures that official course outlines including learning objectives for each course are available to students in each class section. The student achievement of learning outcomes is systematically and consistently assessed using reliable methods and this assessment is the basis for revision of the course material, modes of delivery, credit, grades, and curriculum revision. We systematically take active steps to improve learning outcome and student services. The feedback from our students indicates that they feel very well prepared for other math and science classes, and for transfer to a four-year institution where they perform very well.

The program has statistics in the retention rates and success rates comparable to those of the general COM population. Since the last program review these parameters have improved. We attribute this outcome to the activities listed above.

In an effort to improve the program’s performance we need to consider the following:

a) Math courses should be given a top priority in terms of resource allocation.

b) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95 and to offer Math 95 as a two part course: Math 95A, B for under-prepared students. We also believe that offering Math 103 A, B sections every term will be beneficial to our students.

c) Changes are needed in cutoff scores from Accuplacer for better placement of students into classes where they can be realistically successful. This is especially true for Math 95.

d) Having Math Advisor(s) direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

e) Low enrolled core courses need to be supported and low enrollment ought not to be a deciding factor for class cancellation. This is essential for keeping the program healthy and serving our students.

f) Increased diversity and redundancy in scheduling practices with a possibility of adding weekend
sections of basic skills classes to accommodate working adults will have a positive impact on enrollment.

g) Increasing the summer school offerings and improving scheduling will improve access to COM for four-year college students and COM's own students interested in meeting their transfer requirements faster.

h) Restructuring the Math Lab and enhancing it with technology (this will require the purchase of new computers and replacement of outdated ones every three years) and giving it reliable budget to provide high-quality tutoring services.

i) Incorporating MyMathLab resource into some lecture sections of math program to support students in developmental classes.

j) Developing hybrid courses to teach developmental classes in various formats and settings.

Objective 2:

The Mathematics program at the College of Marin has a demonstrated distinguished history of educational excellence in general education and transfer. It provides the students with a variety of high quality courses designed to accomplish the four primary goals set by our department and reflective of the mission and educational goals of the College of Marin. In recognition of the increasing need for mathematics and technology as tools in a societal context, we give emphasis to applied and contextual based problem solving in our courses. The program seeks to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others. Our curriculum provides a strong transfer program, as well as life-long learning courses.

We provide sufficient frequency of specific offerings: the core transfer courses Math 121, 123, 124, 223 every semester. Math 116 and 224 once a year; the GE and remedial courses spread across mornings, afternoons and evenings. We have early afternoon and evening remedial courses at IVC. We offer an evening sequence, Math 101, 103, 104, 105, 121, 123, and 124 for students who cannot attend day classes. They can i) transfer to university, ii) complete an AA/AS degree program.

The purpose of the Mathematics program is to maintain educational excellence and provide

a) rigorous training for students seeking to transfer to UC/CSU (and other four-year institutions) programs in mathematics,

b) a wide variety of courses presented with appropriate breadth, depth, rigor, sequencing, time of completion, and synthesis of learning meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

c) a positive and supportive learning environment for a diverse student population seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world, and achieving their individual educational and professional goals and expectations.

d) remedial education for students, both for general education needs and specific vocational requirements, e.g., nursing, business and economics.

The Mathematics program serves all students interested in mathematics and its applications. These
include:

a) students majoring in mathematics in order to pursue advanced study, obtain a career in teaching or in the private sector, or achieve intellectual enrichment;

b) students from majors outside of mathematics who need to acquire mathematical skills in order to be successful in their majors;

c) students seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world; and

d) students requiring remediation in mathematics.

The Mathematics program is committed to develop in every one of our students (1) the level of mathematical competence appropriate for their educational goals, (2) an ability to think critically, reason logically, communicate precisely, and apply their knowledge/skills within and outside mathematics, and (3) an appreciation of mathematics as part of human culture.

The expected outcomes of the Mathematics program are

a) successful completion of mathematics requirements and transfer to UC/CSU programs in mathematics,

b) successful completion by students of the courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

To advance the mission of its program the Mathematics Department sets the goals of

1. Teaching students to communicate precisely and logically, to discover patterns in various areas of mathematics, and to apply this knowledge within and outside mathematics.

2. Providing a foundation for critical thinking by developing skills in logic and problem solving

3. Organizing its teaching activities to reflect its commitment to educating students with diverse backgrounds and goals, and to making our expertise as professional mathematicians and educators available to the larger community by offering a broad selection of classes.

4. Seeking to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others.

5. Developing close mentoring relationships among faculty and students through classes of various size and format, student-faculty projects, and a Math Lab offering self-paced classes and tutoring.

6. Working continuously to improve our teaching and effectiveness of the program on the whole; keeping our pedagogy effective and well-suited to our students; exploring innovations in the field of mathematics and mathematical education; implementing improved methods in the classroom.

7. Maintaining a collegial working relationship with colleagues at the schools our majors transfer
to (Sonoma State University, San Francisco State University, U.C. Berkley, and U.C. Davis to name but a few) to insure the equivalence of our course content and to prepare our transferring majors for academic challenges inherent to universities level study.

8. Maintaining diverse course offerings to provide an opportunity for enhancing the educational background of our adult learners and for those individuals that find they are in need of specific training or information that we can teach them. Two distinct populations: highly motivated students with specific goals, e.g., nursing programs, transfer, job requirements, and students lacking such motivation, typically fresh from high school, often with a history of failure in math, are accommodated by two safety nets: the year-long versions of basic skills classes (Math 95 through 103), and their stretch two-semester versions (101AB, 103 AB and 95 AB, the latter to be introduced in the nearest time). We also offer drop-in tutoring for all math students in the Math Lab.

The Mathematics program has a highly-qualified faculty holding advanced degrees in the discipline (4 P.H.Ds, 3 Master?s). Math faculty of COM are accomplished and experienced educators dedicated to the community college mission, educational excellence, and the success of their students. Our faculty is enthusiastic in the discipline itself and in the students? learning of it, and energetic in the teaching process.

The feedback from our students indicates that they feel very well prepared for other math and science classes, and for transfer to a four-year institution where they perform very well.

Attachments:

II. Academic Excellence. The College must offer its students rigorous, high-quality curricula including degree and certificate programs in lower division arts and sciences and in vocational and occupational fields; remedial instruction; English as a Second Language instruction; support services which help students succeed at the postsecondary level; adult noncredit education; and community services courses and programs, in keeping with state mandates. Academic excellence in all of the College’s curricula and support services is at the core of the College’s environment. The curricula must remain current and challenging.

Objective 1a: COM Math program maintains educational excellence in general education and transfer offerings by providing: high quality instruction, excellent faculty and student support services, rich curricular diversity, well-scheduled offerings, and strong relations with four-year institutions. Our program is providing

a) rigorous training for students seeking to transfer to UC/CSU and other institutions,

b) a wide variety of courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

The expected outcomes of the Mathematics program goals are

a) successful completion of mathematics requirements and transfer to UC/CSU programs in mathematics,

b) successful completion by students of the courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences,
The Mathematics faculty are dedicated to providing equal opportunities for all students and community members in preparation for transfer, workforce training, intellectual development, cultural enrichment, and basic skills improvement. Our instructional philosophy is based on conveying the message of success and replacing math phobia with an attitude of confidence and motivation.

Math faculty creates a challenging and supportive learning environment that conveys a belief that students can understand mathematics and that each will be supported in their efforts to accomplish this goal. Our curriculum, teaching, and assessment methods are designed so as to motivate students' understanding of the material, their ability to use it, and their disposition toward mathematics. We are focusing our instruction on the aggregate learning growth and the efficiency of learning of every student by whatever means work best.

The department designs class schedules that are appropriate for its student populations and consistent with the level of student demand and student educational preparation for its course offerings. The department has evidence that its courses and programs successfully meet the learning and/or employment needs of students. See discussion of retention and success rates.

The department designs and schedules other activities (Math Lab, Math&Science Club, AMATYC competition, Putnam competition) to meet the educational needs of students. Math faculty regularly participate in staff development activities and implement what they learn in the department.

All math faculty observe the district's written code of professional ethics and contribute to an ethical institutional environment that promotes personal and civic responsibility among students. Department policies and practices enhance student understanding and appreciation of diversity.

We provide sufficient frequency of specific offerings:

a) the core transfer courses Math 121, 123, 124, 223 every semester. Math 116 and 224 once a year.

b) the GE and remedial courses spread across mornings, afternoons and evenings. We have early afternoon and evening remedial courses at IVC.

c) We offer an evening sequence, Math 101, 103, 104, 105, 121, 123, and 124 for students who cannot attend day classes. They can i) transfer to university, ii) complete an AA/AS degree program.

Two safety nets were designed for struggling students in Basic Skills classes: the stretch versions of Math 101 (101AB) and math 103 (Math 103AB), and the self-paced courses 95AB, 101XY, 103XY taught in the Math Lab. While 101AB has a much better success rate than 101, it is difficult to get students to take it; perhaps students failing 101 could be required to enroll in 101AB. If such a rule were in place, careful counseling would lead students to 101AB in the first place, and allow us to expand our offerings of this very successful course. A careful look at cut-off scores for placement might also help in this connection.
Objective 1b:
The instruction of math students involves the use of Math lab as a place for drop-in tutoring and self-pace offerings (95AB, 101XY, 103XY, math 104). We are operating with no reliable budget. Every year we have to negotiate budget for our tutors to provide services. Our hardware and software is obsolete, the space is inadequate. In spite of the fact that we are chronically under-funded, crowded and cannot even get the old lab cabinets be removed to allow more space for students, we have excellent staff attentive to students? needs.

Some of our tutors are bilingual, which allows us to attract minority students to the Lab. We offer tutoring throughout the entire math curriculum (Math 25 ? 224) during prime time, afternoon, and evening hours.

Attachments: Math lab schedule

III. Faculty and Staff Excellence. For the College to excel, it must attract and maintain a faculty and staff of the highest quality, one that functions within an environment of professional development and renewal, and one that focuses on and values the teaching and learning process.

Objective 1a:
The Mathematics program has a highly-qualified faculty holding advanced degrees in the discipline (4 Ph.Ds, 3 Masters). Math faculty of COM are accomplished and experienced educators dedicated to the community college mission, educational excellence, and the success of their students. The mission of the department is to provide equal opportunities for all students and community members in preparation for transfer to four-year schools and universities, workforce training, intellectual development, cultural enrichment, and basic skills improvement. We are committed to offering a variety of courses in a positive and supportive learning environment for a diverse student population seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world, and achieving their individual educational and professional goals and expectations.

We organize our teaching activities to reflect our commitment to developing in our students the level of mathematical competence appropriate for their educational goals, to fostering appreciation of mathematics as part of human culture, to providing a climate conducive to intellectual growth of students and faculty, and to preparing and inspiring students to the service of others.

Communication on professional matters among all members of the department is frequent, interactive, and effective. Members of the department collaborate on curriculum design and review, participate in professional development activities to upgrade, refresh, and/or expand their skills and knowledge. The course offerings are reviewed regularly by all members of the department, and all course outlines have been updated in 2006. The department's courses conform in content, textbooks, and instructional methods to current disciplinary standards and are designed to meet the degree and/or general education needs of students. The courses are presented with appropriate breadth, depth, rigor, sequencing, time of completion, and synthesis of learning.

Faculty use the same textbook in sequential courses. Interdepartmental discussions are held regularly with physics, engineering, and chemistry, to assure consistency in course content and available offerings. Faculty stay current in the discipline through professional reading, scientific research, textbook and learning resources development, etc.
The department contributes effectively to student access, retention, and achievement of learning outcomes to assure that student achievement of learning outcomes is systematically and consistently assessed by reliable methods. This assessment is the basis for course, credit, grades, and curriculum revision. We systematically take active steps to improve learning outcome and student services. The feedback from our students indicates that they feel very well prepared for other math and science classes, and for transfer to a four-year institution. Our faculty is enthusiastic in the discipline itself and in the students’ learning of it, and energetic in the teaching process. For students lacking the self-motivation, intentions, independence, learning efficacy, or learning management skills to learn continually and successfully, we provide various learning experiences to engage students in analysis and problem formulation, and to create as many positive experiences as we can to give the students the sense of empowerment and personal fulfillment.

Math faculty is accessible to students through office hours, voice mail and email. Many instructors open their office to ANY students in need. We are involved in student mentoring and serve as role models, especially for older students, women, and minorities, in their pursuit of careers in mathematics and science. In response to the increasing diversity of our student population, the department develops and employs methods and systems of instructional delivery that are appropriate to the discipline and to the educational needs of our students. The department is committed to efficient use of facilities and equipment, clerical and technological support, to support the overall math program, maintain the effectiveness of its courses and an environment conducive to learning. The department identifies areas needing improvement on a regular basis and has adopted a system of correcting problems and improving services (Course restructuring, SLOs, Departmental Finals, Math Lab self-paced classes and tutoring). The department communicates efficiently and effectively with other faculty and non-instructional departments to meet the instructional needs of students.

Objective 1b:
See section II.

Attachments:

IV. Community Responsiveness. The College must offer broad curricula to meet the needs of students. It must select areas of special interest and need to the communities it serves.

Objective 1a:
The expected outcomes of the Mathematics program are

a) successful completion of mathematics requirements and transfer to UC/CSU programs in mathematics,

b) successful completion by students of the courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

Transfer Level Mathematics for Engineering and Sciences: COM Math program is recognized as a strong high-quality program meeting the needs of a diverse student population and preparing them for successful transfer to the UC/CSU system. The College of Marin mathematics department has an excellent track record of preparing students for transfer level mathematics courses and especially for preparing science and engineering students for their last two years at a four year California State University or UC campus. The department’s courses conform in content, textbooks, and instructional methods, to current disciplinary standards and are designed to meet the outcomes of the Mathematics program listed above.

By cultivating an on-going interaction with counterparts from four-year institutions we ensure successful transfer of COM students to their institutions. The mathematics department has modified and strengthened the precalculus and calculus sequence so that our curriculum closely matches the
topic coverage and level of rigor of those same courses at California State Colleges and the campuses of the University of California. This has involved not only a reorganization and supplementation of topics, but also the introduction (in Fall 2007) of a combined course in College Algebra and Trigonometry (Math 109) that enables science bound students a "faster track" to the standard calculus sequence. The student learning outcomes maintained by the mathematics department over the past 15 years have been a fundamental ingredient in the outstanding performance of COM transfer science students when they transfer to UC and Cal State campuses. The recent transfer students have benefited from the curriculum changes mentioned above through (1) the very close articulation of all COM mathematics courses with the corresponding courses at UC and Cal State and (2) the shorter time now necessary for these students to enter upper level courses.

Partnership with K-12: The program has a partnership with the K-12 system of Marin county. The students of our department are providing tutoring services to middle-school and high-school students. We are also using this as a venue of attracting more students to COM, especially to our Calculus sequence. This project will be further expanded in 2009.

Objective 1b:

Objective 1c:

Attachments:

V. Diversity. The community college is the primary opportunity for people of great diversity to come together for growth and development. The College has an absolute obligation to bring together people of different ages, races, and ethnic backgrounds, male and female, at different levels of development, in an atmosphere of equal opportunity and tolerance.

Objective 1a:

COM Math program is continuously working to develop and maintain a supportive learning environment where individuals will be most likely to fulfill their personal and professional goals and expectations.

The Mathematics program seeks to

a) provide a variety of courses in a positive and supportive learning environment for a diverse student population seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world, and achieving their individual educational and professional goals and expectations.

b) organize its teaching activities to reflect its commitment to educating students with diverse backgrounds and goals, and to making our expertise as professional mathematicians and educators available to the larger community by offering a broad selection of classes

b) develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to
c) develop close mentoring relationships among faculty and students through classes of various size and format, student-faculty projects, and a Math Lab offering self-paced classes and tutoring.

d) improve our teaching by keeping our pedagogy effective and well-suited to our students; exploring innovations in the field of mathematics and mathematical education.

We have a highly-qualified faculty dedicated to providing equal opportunities for all students and community members in preparation for transfer, workforce training, intellectual development, cultural enrichment, and basic skills improvement. Math faculty's instructional philosophy is based on conveying the message of success and replacing math phobia with an attitude of confidence and motivation. Math program creates a challenging and supportive learning environment that conveys a belief that students can understand mathematics and that each will be supported in their efforts to accomplish this goal. Our curriculum, teaching, and assessment methods are designed so as to motivate students' understanding of the material, their ability to use it, and their disposition toward mathematics. We are focusing our instruction on the aggregate learning growth and the efficiency of learning of every student by whatever means work best.

The department designs class schedules that are appropriate for its student populations and consistent with the level of student demand and student educational preparation for its course offerings. The department designs and schedules other activities (Math Lab, Math&Science Club, AMATYC competition, Putnam competition) to meet the educational needs of students. Math faculty regularly participate in staff development activities and implement what they learn in the department. All math faculty observe the district's written code of professional ethics and contribute to an ethical institutional environment that promotes personal and civic responsibility among students. Department policies and practices enhance student understanding and appreciation of diversity.

The department contributes effectively to student access, retention, and achievement of learning outcomes to assure that student achievement of learning outcomes is systematically and consistently assessed by reliable methods. This assessment is the basis for course, credit, grades, and curriculum revision. We systematically take active steps to improve learning outcome and student services. Our course syllabi communicate clearly high expectations for our students. We expect our students to arrive on time every day with the appropriate materials, to put real effort into class and home assignments, to behave appropriately for a college classroom. At all times, we expect them to be respectful and courteous to their peers, to Instructors, and to the learning environment. Their conduct should benefit, not hinder anyone in class. Conduct which is disrespectful or which disrupts another student's ability to learn is not tolerated. We promote the atmosphere of academic honesty.

Our faculty is enthusiastic in the discipline itself and in the students' learning of it, and energetic in the teaching process. For students lacking the self-motivation, intentions, independence, learning efficacy, or learning management skills to learn continually and successfully, we provide various learning experiences to engage students in analysis and problem formulation, and to create as many positive experiences as we can to give the students the sense of empowerment and personal fulfillment. The feedback from our students indicates that they feel very well prepared for other math and science classes, and for transfer to a four-year institution.

Math faculty is accessible to students through office hours, voice mail and email. Many instructors open their office to ANY students in need. We are involved in student mentoring and
serve as role models, especially for older students, women, and minorities, in their pursuit of careers in mathematics and science. In response to the increasing diversity of our student population, the department develops and employs methods and systems of instructional delivery that are appropriate to the discipline and to the educational needs of our students.

The department is committed to efficient use of facilities and equipment, clerical and technological support, to support the overall math program, maintain the effectiveness of its courses and an environment conducive to learning. The department identifies areas needing improvement on a regular basis and has adopted a system of correcting problems and improving services (course restructuring, SLOs, departmental finals, Math Lab self-paced classes and tutoring). The department communicates efficiently and effectively with other faculty and non-instructional departments to meet the instructional needs of students.

Objective 1b:

Objective 1c:

Attachments:

VI. Fiscal Responsibility. The Board and the Administration must operate the College in a fiscally sound way. Together, they must limit expenditures to those that relate directly to the College’s mission, goals and objectives; maintain a prudent level of reserves; and generate new sources of revenue to supplement state funding allocations.

Objective 1c:

Attachments:

VII. Develop and implement sound and coordinated planning processes. Develop and implement sound and coordinated planning processes, utilizing data gathered through Program Review, and other data sources, to support institutional, instructional, and student support service goals, and to promote achievement of student learning outcomes.

Objective 1a:

In its performance, the Math program is driven by the college's expectation of academic excellence. The math department has formulated the program SLOs that aim at teaching the students problem-solving.

In particular, the program SLOs include the students' ability to:

a) clarify the problem in question by breaking it apart into manageable sub-questions;

b) discern and describe relevant factors; do appropriate observations, data collection, and analysis;

c) explicitly support the evidence or line of thinking that led to a particular outcome.
All of the above-mentioned SLOs aim at mastery of oral and written communication skills, information competency, informational literacy, scientific and quantitative reasoning, critical analysis/logical thinking, and the ability to acquire knowledge through a variety of means. They serve the goal of imparting a rich body of knowledge, principles, and methodology of mathematical science that will enable students to cope with the ever-changing challenges of today and tomorrow that are cross-disciplinary and interdisciplinary in nature, to be productive individuals and life long learners. An additional outcome: students taking math courses will be able to find gainful employment in the fields requiring mathematical proficiency. Hence, the program level SLOs are aligned with and support the College goals by addressing their key elements, most importantly, educational excellence, supportive learning environment, and rigorous curriculum.

Our assessment of student success in the program is based on

a) Instructor evaluations of students? written and oral feedback;

b) Instructor evaluations of students? homework assignments, tests, projects, etc;

c) Success rates per course;

d) Retention rates per course;

e) Placement test results;

f) Informal student surveys to assess where the students transferred and if they are successful at a four-year institution, etc;

g) Communication with the faculty of the Science programs and the peers from four-year on the level of preparation of our students.

Problem solving assessment: The department has developed assessment criteria based on the collectively designed departmental finals and comparison of the students? success in particular areas of each course. We administered at least five departmental finals with common questions embedded in them and collected on students? success in meeting the set outcomes. Participation of the instructors in incorporating those common questions was unanimous.

Over the years, we have recognized that a consistently challenging outcome for the students to meet is problem solving. For example, on Spring 2006 departmental finals common questions that focused on problem solving had the average score of only 59%. In response to this data the department decided to develop and implement extended versions of basic skills classes (Math 101A&B and Math 103 A&B) to support them with a lab component, to teach a separate basic skills workshop (Math 90) that addresses deficiencies in basic skills and problem solving across the curriculum,

Goals included helping the students to be more successful in Math 95 through Math 103 and beyond; helping them to think critically and solve problems efficiently and, as a result, to fulfill the core outcomes in general education.

Value-added assessment: The department administered pre- and post- tests in basic skills classes focusing on basic skills that the students are expected to bring into each class and carry to the next one at the exit. We plan to use this to determine if we need to supplement each course with more review materials and give immediate feedback to the students on their readiness for the course.
Retention assessment: The department introduced stretch versions of basic skills classes (Math 95, 101, 103) to target at-risk student populations. We are planning to expand these course offerings and run Math 103 AB sections every semester.

Placement assessment: The math placement tests were reviewed and replaced with computer-based Accuplacer which, the department believes, is placing students more accurately into the appropriate math classes with less over/under placement. Now a student is less likely to be placed incorrectly by guessing right answers in the placement tests. The test is web-based and dynamically generated, which excludes memorization of the test questions. Our faculty noticed that the backgrounds of the students coming to their classes are better aligned with the class level.

Outcomes of assessment of student success in the program: We know the students learned the core SLOs by the completion of curriculum/program from the Final tests and other assessment tools designed as appropriate for each class.

Areas for future improvement:

Student learning in the math program can be improved by a variety of measures in the following areas:

Instruction:

a) continuing to provide state of the art instruction by highly-qualified faculty holding advanced degrees in the discipline;

b) continuing to develop and maintain a supportive learning environment that promotes interest and pride in academic pursuit and achievement and helps the students to fulfill their personal and professional goals;

c) supporting workforce development in providing training for a wide range of occupations requiring mathematical proficiency;

d) encouraging broader community involvement in and use of the COM math program by means of curricular offerings in a variety of formats, cultivating partnerships with four-year schools and K-12 educators;

e) upgrading classrooms and Math Lab with computers;

f) acquiring computer software to support instruction and learning;

Curriculum and articulation:

The curriculum, articulation processes, tools, validation, and guidance for the program self-assessment may be improved by an on-going comprehensive program review, especially addressing our developmental curriculum. The math faculty will continue to discuss what really matters: factors that directly influence students’ success, retention, and the ability of students to take what they learn and transfer it to other areas of their education and lives.
The improved self-assessment process will become the foundation upon which program will be developing a platform to advocate for its needs in achieving educational excellence. The product of self-assessment will provide valuable information for decision-making and resource allocation by the math program.

The curriculum and articulation can be improved by close communication and cooperation with our counterparts at UCSF system (and other four-years schools) to ensure course content and numbering are in alignment. The goal is to ensure seamless transfer of our students to other colleges and universities.

Educational Planning:

Through constant gathering and analysis of the internal and external data, the program review process will continually improve and adjust to the changing needs of a diverse student population at COM. Aligning the program review process with the COM’s Mission Statement, Educational Master Plan, and the Standards for Accreditation will direct all assessment toward better student learning and success.

Faculty Unit Allocation and Staff Support:

We need to hire more full-time faculty (at least two) and tutors. We need a stable budget for tutoring services in the Math Lab.

Instructional Equipment and Materials:

We need to upgrade a number of rooms that math program uses in the Science building to smart classrooms will enhance student learning via technology (e.g. vide clips, animation, demonstration, web-based instruction, software tutorials). Our computers need to be replaced every 3 years.

Scheduling:

The math program will continue to improve diversity, redundancy and flexibility in its course offerings and scheduling practices. We are looking into a possibility of offering weekend classes to accommodate working adults, especially our basic skills population.

Facilities:

With the Bond issue, math program is being relocated to new facilities. At the new facilities, the program will be able to increase the student capacity both in the lecture class and the lab, support instruction with modern technology and improve its efficiency.
Program Review

Objective 1b:

Objective 1c:

These needs have not been met. Gathering and analyzing data is only part of the process. Another part is proper funding and administrative support of our program.

Attachments:

VIII. Create a physical environment that is inviting to students, generates pride in the community, adheres to green principles, and supports the College’s Mission, Goals and Initiatives.

Objective 1c:

Attachments:
I. Program Excellence (Best Practices)

Briefly summarize examples staff/faculty, institutional, and academic excellence.

The Mathematics program at the College of Marin is providing a variety of high quality courses designed to accomplish the goals set by our department and reflective of the mission and educational goals of the College of Marin. The program is committed to develop in every one of our students

(1) the level of mathematical competence appropriate for their educational goals,

(2) an ability to think critically, reason logically, communicate precisely, and apply their knowledge/skills within and outside mathematics, and

(3) an appreciation of mathematics as part of human culture.

Our best practices in guiding this review and in the planning of our goals and outcomes include

a) faculty who are highly-qualified, knowledgeable and enthusiastic in the discipline;

b) curriculum designed for a diverse student population seeking opportunities, through general education mathematics courses, to participate as informed and ethical citizens of the world, and achieve their individual educational and professional goals and expectations;

c) a strong two-year transfer program with top-quality university level instruction;

d) continuous efforts in improving our teaching and effectiveness of the program on the whole; keeping our pedagogy effective and well-suited to our students; exploring innovations in the field of mathematics and mathematical education; implementing improved methods in the classroom;

e) continuous effort to increase retention and success through improved placement with the help of a web-based and dynamically generated test, which excludes memorization of the test questions; pre- and post- tests in developmental classes; focusing on basic skills that the students are expected to bring into each class and carry to the next one at the exit;

f) flexibility in course offerings and delivery formats to address the needs of developmental and remedial instruction; introducing stretch versions of developmental classes (Math 95-103) to target at-risk student populations; a system of support services characterized by a high degree of integration among academic and student support services;
g) developing assessment criteria based on the collectively designed departmental finals and comparison of the students' success in particular areas of each course. We administered at least five departmental finals with common questions embedded in them and collected on students' success in meeting the set outcomes;

h) developing close mentoring relationships among faculty and students through classes of various size and format, student-faculty projects, directed study, and a Math Lab offering self-paced classes and tutoring;

i) maintaining a collegial working relationship with colleagues at the schools our majors transfer to (Sonoma State University, San Francisco State University, U.C. Berkley, and U.C. Davis to name but a few) to insure the equivalence of our course content and to prepare our transferring majors for academic challenges inherent to universities level study.

II. Program Resources (Responsiveness)

Briefly summarize examples of key resources required for your program to meet or exceed the college goals (as cited in this review).

Math program should be given a top priority in terms of COM resource allocation. This is essential to maintain and expand a healthy math program that provides rich curricular diversity and well-scheduled offerings; maintains educational excellence in general education and transfer offerings; maintains high quality instruction; keeps and attracts excellent faculty and support staff.

Our program is providing

a) rigorous training for students seeking to transfer to UC/CSU and other institutions,

b) a wide variety of courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

We need resources to address the following areas

a) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95; to offer two part courses Math 95AB, Math 103 AB to under-prepared students.

c) To work on better utilization of Accuplacer to place students into math classes where they can be realistically successful. This is especially true for Math 95.

d) Having Math Advisor(s) who will direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

e) Low enrolled core courses need to be supported and low enrollment ought not to be a deciding factor for class cancellation. This is essential for keeping the program healthy and serving our students.

f) Increased diversity and redundancy in scheduling practices with a possibility of adding weekend sections of basic skills classes to accommodate working adults will have a positive impact on enrollment.

g) Increasing the summer school offerings and improving scheduling will improve access to COM for four-year college students and COM?s own students interested in meeting their transfer
requirements faster.

h) Restructuring the Math Lab and enhancing it with technology (this will require the purchase of new computers and replacement of outdated ones every three years) and giving it reliable budget to provide high-quality tutoring services.

i) Incorporating MyMathLab resource into some lecture sections of math program to support students in developmental classes.

j) Developing hybrid courses to teach developmental classes in various formats and settings.

Modernization of the College of Marin mathematics lab is the highest priority need for new funding. The mathematics lab at the College of Marin needs restructuring to offer better services for math students of all levels. The mathematics department plans to experiment with "hybrid" mathematics courses in which a required lab hour or lab component is added to a traditional lecture based mathematics course. The lab component of these hybrid courses would use the same facility and equipment as used by the present math lab, which is inadequate even for our current needs.

With the goal of modernizing the College of Marin Math Lab, program review for the next two to five years will include requests for funding the following items (these items appear in the expenses/budget portion of this document as well):

1. Computer workstations and learning software capable of supporting 12 students at one time.

2. Software for test generation and software that will maintain homework and grade records that is "secure" (so that students can access their own records, but not access the records of other students).

III. Moving Forward Objectives (Planning)

Briefly summarize examples of data-driven and coordinated planning to improve student enrollment, learning and success.

The Math program believes that, based on the analysis of the collected data and coordinated planning aimed at improving student enrollment, learning and success, the following actions are needed:

a) Curriculum should be expanded to add a new prerequisite arithmetic course (Math 85) for students not ready for Math 95; to offer two part courses Math 95AB, Math 103 AB to under-prepared students which we would like to run every semester.

b) Work should continue on better utilization of Accuplacer to place students into math classes where they can be realistically successful. This is especially true for Math 95.

c) Introducing a Math Advisor(s) who will direct students into appropriate levels of basic skills classes and the rest of the math curriculum will have a positive impact on enrollment.

d) Low enrolled core courses need to be supported and low enrollment ought not to be a deciding factor for class cancellation. This is essential for keeping the program healthy and serving our students.
e) Increased diversity and redundancy in scheduling practices with a possibility of adding weekend sections of basic skills classes to accommodate working adults will have a positive impact on enrollment.

f) Increasing the summer school offerings and improving scheduling will improve access to COM for four-year college students and COM’s own students interested in meeting their transfer requirements faster.

g) Math Lab should undergo restructuring. Self-paced classes will be phased out and replaced with hybrid courses to teach developmental classes in various formats and settings. They will have a lab component which will require the purchase of new computers and replacement of outdated ones every three years and giving the Lab a reliable budget, especially for high-quality tutoring services.

h) Incorporating MyMathLab resource into some lecture sections of math program to support students in developmental classes. For this purpose we need to install computer workstations and learning software capable of supporting at least 12 students at one time. We also need to acquire software for test generation and software that will maintain homework and grade records that is "secure" (so that students can access their own records, but not access the records of other students).

IV. Other Concluding Remarks
Briefly summarize any additional insight necessary to conclude this program review.

Executive Summary

Program Definition

The Mathematics program at the College of Marin has a demonstrated long and distinguished history of providing the citizens of Marin county and adjacent counties with a variety of high quality courses. In recognition of the increasing need for mathematics and technology, we give emphasis to applied and contextual based problem solving in our courses. This program seeks to develop in our students the level of mathematical competence appropriate for their educational goals, to foster appreciation of mathematics as part of human culture, to provide a climate conducive to intellectual growth of students and faculty, and to prepare and inspire students to the service of others.

Our curriculum provides a strong transfer program, as well as life-long learning courses. We provide sufficient frequency of specific offerings:

a) the core transfer courses Math 121, 123, 124, 223 every semester; Math 116 and 224 once a year.

b) the GE and remedial courses are spread across mornings, afternoons and evenings. We have early afternoon and evening remedial courses at IVC.
c) We offer an evening sequence, Math 101, 103, 104, 105, 121, 123, and 124 for students who cannot attend day classes. They can i) transfer to university, ii 2) complete an AA/AS degree program.

To better serve Basic Skills classes we offer stretch versions of Math 101 and math 103 and the self-paced courses 95AB, 101XY, 103XY, Math 104 taught in the Math Lab. The latter will be phased out and replaced with hybrid courses enhanced with a lab component. The introduction of Accuplacer has allowed us to improve placement of the students into classes appropriate to their backgrounds.

**Program purpose**

The primary purpose of the Mathematics program is to maintain educational excellence and provide

a) rigorous training for students seeking to transfer to UC/CSU (and other four-year institutions) programs in mathematics,

b) a wide variety of courses meeting the UC/CSU general education requirement in mathematics for other disciplines, particularly in the physical and life sciences, engineering, and business who will transfer as college juniors.

Additionally, the Mathematics program sets the goals to provide

c) a variety of courses in a positive and supportive learning environment for a diverse student population seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world, and achieving their individual educational and professional goals and expectations.

d) remedial education for students, both for general education needs and specific vocational requirements, e.g., nursing, business and economics.

The Mathematics program is committed to develop in every one of our students (1) the level of mathematical competence appropriate for their educational goals, (2) an ability to think critically, reason logically, communicate precisely, and apply their knowledge/skills within and outside mathematics, and (3) an appreciation of mathematics as part of human culture.

**Students Served**

The Mathematics program serves all students interested in mathematics and its applications. These include:

a) students majoring in mathematics in order to pursue advanced study, obtain a career in teaching or in the private sector, or achieve intellectual enrichment;
b) students from majors outside of mathematics who need to acquire mathematical skills in order to be successful in their majors;

c) students seeking opportunities, through general education mathematics courses, to investigate the complexity and diversity of human experience while learning to communicate clearly and to think independently, critically, and creatively, with the goal of participating as informed and ethical citizens of the world; and

d) students requiring remediation in mathematics.

From a sample of 379 students, 94% take mathematics for transfer; 49% for transfer major; 45% for General Ed. Transfer; 6% for personal enrichment.

The program experienced the following changes in Spring 08 compared to Spring 07:

a) a decrease of enrollment by 5%;

b) gender distribution: **MALE:** changed from 512 to 529 which constitutes an increase by 3.4%.  
**FEMALE:** changed from 626 to 565 which constitutes a decrease by 3.4%.

c) ethnic distribution:

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>decrease by 0.1%</td>
</tr>
<tr>
<td>Asian</td>
<td>increase by 1.2%</td>
</tr>
<tr>
<td>Black</td>
<td>increase by 0.9%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>decrease by 0.1%</td>
</tr>
<tr>
<td>White</td>
<td>decrease by 1.7%</td>
</tr>
<tr>
<td>Other</td>
<td>decrease by 0.6%</td>
</tr>
</tbody>
</table>

d) retention increased by 2.1%.

e) success increased by 2.6 %.

The College of Marin mathematics department has developed very specific and detailed student learning outcomes for the elementary algebra and intermediate algebra courses. The faculty teaching these courses has worked diligently toward these student learning outcomes. At the end of each semester the students in each section of these courses are required to complete and pass the same carefully constructed final examination that tests these student learning outcomes. The results on these final examinations help guide teaching emphasis and methods in future versions of the elementary and intermediate algebra courses. The mathematics department has seen (at least informally) that the success of students bound for a
Single transfer level mathematics course (such as statistics Math 115 or mathematical reasoning Math 110) is directly related to our maintaining the standards of our detailed student learning outcomes in the elementary and intermediate level algebra courses.

Transfer Level Mathematics for Engineering and Sciences: The College of Marin mathematics department has modified and strengthened the precalculus and calculus sequence so that our curriculum closely matches the topic coverage and level of rigor of those same courses at California State Colleges and the campuses of the University of California. This has involved not only a reorganization and supplementation of topics, but also the introduction (in Fall 2007) of a combined course in College Algebra and Trigonometry (Math 109) that enables science bound students a "faster track" to the standard calculus sequence. The student learning outcomes maintained by the mathematics department over the past 15 years have been a fundamental ingredient in the outstanding performance of COM transfer science students when they transfer to UC and Cal State campuses. The recent transfer students have benefited from the curriculum changes mentioned above through (1) the very close articulation of all COM mathematics courses with the corresponding courses at UC and Cal State and (2) the shorter time now necessary for these students to enter upper level courses.

5) Major Findings. (Research continues.)

It is clear that the College of Marin mathematics department has an excellent track record preparing students for transfer level mathematics courses and especially for preparing science and engineering students for their last two years at a four year California State University or UC campus. Maintaining these high standards has been and will continue to be the main focus of the College of Marin mathematics department.

The Basic Skills Initiative has brought money and attention to an increasing number of college age students who need extensive training in the basic arithmetic skills they never learned during the age appropriate time in elementary school. The College of Marin mathematics department has always been aware of the needs of this group of students; however it has not been clear until the Basic Skills Initiative that community college mathematics faculty as a whole would be called upon to take part in solving the needs of a large portion of these students. At present, the vast majority of the students in need of extensive training in basic arithmetic skills never complete the elementary algebra course (Math 101) that is required for the AA degree. It is hoped that the Basic Skills Initiative funding (together with the support of the College of Marin administration) will enable the College of Marin mathematics faculty to develop courses and programs that will significantly increase the number of these students that advance to the AA degree and even transfer to four year colleges. The College of Marin mathematics faculty has been actively planning several approaches that they feel are the most likely to significantly increase the success rate of students that enter the College of Marin with seriously deficient basic mathematics skills. Three of these proposals have been very briefly described in the Future Needs section below.

6) Future Needs

Modernization and restructuring of the College of Marin mathematics lab and a reliable budget for its operation are our highest priorities. The mathematics lab at the College of Marin has offered self paced courses for students who either (1) cannot fit a traditional lecture based mathematics course into their work schedule or (2) cannot (or need not) adhere to the standard (very regimented) pace of a traditional lecture based mathematics course. We believe time has come to phase out self paced courses and replace them with hybrid courses enhanced with a lab component. The lab component of these hybrid courses will have to use the same facility and equipment as used by the present math lab which are inadequate.

With the goal of modernizing the College of Marin Math Lab, program review for the next two to five years will include requests for funding the following items (these items appear in the expenses/budget portion of this document as well):

1. Computer workstations and learning software capable of supporting 12 students at one time.
2. Software for test generation and software that will maintain homework and grade records that is "secure" (so that students can access their own records, but not access the records of other students).

3. Computer workstations and support devices (printers, etc) for the mathematics specialists at the Kentfield and Indian Valley math lab facilities.

4. Reassigned time and grant funding for full time and part time faculty as well as mathematics specialists to (1) research, (2) develop, and (3) train themselves and other math lab personnel in the new self-paced course curriculum and technology that will be designed and implemented over the next five years.

The College of Marin mathematics faculty is prepared to address the students in need of intensive basic skill mathematics on (at least) three separate fronts. Each of these proposals is under consideration, and each would take several pages to describe.

First, the basic arithmetic course (Math 95) can be reorganized for those students who need more time to re-learn or master these important skills. There will be experimentation with adding one or two hours of problem solving/lab to the present lecture based course. Availability of paid tutors and counselors is a likely constituent of any such plan. Also, a two-semester version of the basic arithmetic course is being seriously discussed at this time.

Second, a ten-hour per week elementary algebra course (Math 101) has been proposed. This course is intended as a prototype course for future AA candidates who have successfully completed basic arithmetic, but will likely have difficulty completing the AA degree mathematics requirement (presently elementary algebra is the requirement, but intermediate algebra will be the requirement starting in fall 2009).

Third, a pre arithmetic course that would focus on addition and multiplication skills, could be developed if research indicates this would help a significant number of students to complete the basic arithmetic (Math 95) course. This new course would likely require a very close study of existing research in the teaching of basic primary grade arithmetic skills to adults. Specialists in the psychology of learning disorders might be required as consultants. It is clear that the existing College of Marin faculty is not trained to handle this type of student; therefore, staff development funding and training would be absolutely necessary.

Written and submitted by Irina Roderick, Ph. D. Mathematics Department