



Instructional Program Review Summary 2003-2004

Instructional Area: **Mathematics/Science**

Department: **Mathematics**

Discipline: **Mathematics and Developmental Mathematics**

March 11, 2004

Instructional Program Review Summary

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NOTE: An external reviewer should not be required to refer to the documentation notebook to understand the Instructional Program Review

Summary. Rather, data should be clearly cited in the summary so that the reviewer can easily find the source documents if needed.

EXECUTIVE SUMMARY

Use the following guidelines to provide a concise overview/summary of the program review contained in this report.

Write a brief description of the goals and objectives of the discipline.

The Mathematics program is centered on serving the mathematical needs of all students. While the Mathematics program does have a small number of majors, the program is mostly a service program. The department offers a sequence of developmental courses to allow everyone, no matter their background or current level of mathematical knowledge, the opportunity to start at an appropriate level course and move into college-credit courses. The department offers a broad range of college-credit courses that serve students in mathematics and sciences, business, social sciences, teacher certification, and workforce programs. The Department also offers courses to allow students to fulfill their General Education and Core Curriculum mathematics requirement while learning mathematical skills that would be useful in their chosen profession.

The objectives of developmental courses are to bridge the gap between the student's current mathematical knowledge and the mathematical background necessary to succeed in college credit courses, to support and motivate students to attain their academic goals, and to appropriately prepare students for college credit course as quickly as possible.

Every mathematics course should provide the quantitative and critical thinking skills students need, teach students to be precise in their thinking, teach students to define, analyze and solve quantitative problems, and prepare students to apply mathematical principles in their chosen profession and their lives.

The quality of the Mathematics program is dependent upon the quality of the faculty. Despite the size of the mathematics faculty, one of the greatest strengths of the program is the high quality, student-oriented faculty. The Department seeks to maintain that high quality. Mathematics is a difficult subject for many students, and the instructor is often an integral part of student success.

The Department also seeks to stay current in both the curriculum and pedagogy. The Department is constantly assessing the success of the curriculum and revising as needed. The Department has a Course Committee for every course offered. That committee is composed of faculty members who are interested in the course and who usually teach the course regularly. The Course Committee is the watchdog group that does all the detailed analysis and makes the recommendations on the course to the Department. Every course is reviewed at least every two to three years. Additionally, the Department annually collects data from OIE to check that the course curriculum appropriately prepares

students for the next course. Much more data than is required by the Institutional Effectiveness measures is collected and analyzed.

One of the major developments in teaching mathematics is the use of technology. When used properly, technology can accelerate, enhance, and augment understanding and knowledge, and support students in handling computations. The Department is working to acquire the resources necessary to properly support instruction and to maintain currency in the curriculum. This is one of the Department's major challenges.

Overview of how the program review was conducted.

The Program Review Committee had representatives from the full-time mathematics faculty and the adjunct mathematics faculty. It had members who had served on the previous Program Review Committee and new members. The members were sent the final report documents from the 99-00 Program Review and the report documents that would be completed this year. After reviewing those documents, the committee met and discussed general strategy. Eventually, the committee members decided to accept responsibility for various sections. Documents were shared with each other, necessary information was sought and developed. All data was shared and section reports were reviewed and revised by the entire committee. Recommendations were reviewed and approved by the Department. A formal report will be made to the department after submission of the Program Review Documents.

Summary of findings:

Progress on previous program review recommendations.

There has been some progress on the previous recommendations, but more is needed. All of the previous recommendations were impacted by the college's financial situation.

Some new full-time faculty were hired, but not enough. More full-time faculty are needed.

The Department has acquired some technology to support classes and has offered some workshops on use of technology. Much more is needed.

As technology is acquired, the department needs to offer professional development activities to support faculty in appropriate use of the technology.

Program strengths.

The greatest strengths of the Mathematics program are the quality and dedication of the faculty both full-time and adjunct, and the diversity, quality and transferability of the departmental course offerings. The Math Manual is a strong useful instrument that allows every faculty member to have all the information with notes about every course offered. There is a regular review of all courses and a close tie between developmental mathematics courses and the college credit mathematics courses.

Areas for improvement.

More full-time mathematics faculty are needed. The percentage of sections taught by adjunct faculty is too high.

The Department needs to acquire the technology and resources to support instruction.

The Department needs to work on the non-mastery and withdrawal rates in courses.

Key planning issues.

Maintain the strength in the faculty and curriculum offerings.

Work within college processes and budget processes to obtain funding for needed technology.

Work with all segments of student support to improve non-mastery and withdrawal rates.

Be an integral part of the Closing the Gaps initiative in the college.

Continue to work on departmental communication.

Conclusions: What are the major conclusions regarding the present state of the program?

The Mathematics program is the largest and most "profitable" program in the college. The program is mainly a service area which serves every student in the academic programs and many students in the workforce programs.

The Mathematics program has a strong faculty and strong course offerings. The strength is illustrated by the transferability of courses, the success of students who transfer, and the performance of our students in the AMATYC Math Contest. The Department needs to continue to work on curriculum to be sure that it is prepared to appropriately serve every student from those with the weakest mathematical background to those with the strongest

The Department is extremely large, more than twice the size of any other department. The Department needs additional full-time faculty. The Department needs to continue to work on communication within its faculty and between the department and the college.

Technology resources to support instruction in mathematics courses is the number one concern. Without additional technological resources, the quality and currency of instruction is threatened.

The Mathematics Department needs to continue to participate in all aspects of the college. The Department needs to work within the college structure to obtain appropriate funding and resources for the department, to obtain sufficient sections to properly serve students, and to assure that the complexities of the department are understood.

Recommend future directions for the program based on this review:

- Expand services
- Maintain services
- Reduce services
- Close program

Recommendations: Summarize the self-study's recommended actions for improving the quality of the program.

Recommendations:

1. Hire more full-time faculty
2. Obtain the technological resources necessary to support instruction: media presentation equipment, graphing calculator presentation equipment, graphing calculators, computer classrooms and software.
3. Work on improving non-mastery and withdrawal rates from all perspectives.
4. Increase the number of sections to properly serve all students and to support the Closing the Gaps initiative.
5. Obtain proper funding to train faculty and maintain technological resources in working order.

SELF-STUDY TEAM PARTICIPANTS

List the names of people who participated in the review and their association with your program.

Name **Dr. Constance Elko** ACC Faculty Industry Representative
 Student

Name **Clarence McGuff** ACC Faculty Industry Representative
 Student

Name **Christina Downs** ACC Faculty Industry Representative
 Student

Name **Michael Huff** ACC Faculty Industry Representative
Student

Name **Wayne Rogers** ACC Faculty Industry Representative
 Student

Name ACC Faculty Industry Representative Student

Name ACC Faculty Industry Representative Student

Name ACC Faculty Industry Representative Student

Name ACC Faculty Industry Representative Student

PROGRAM DESCRIPTION

Provide a brief description of the overall history, major developments and current objectives for your program (limit to 500 words).

Mathematics is an integral part of education at every institution of learning. There has been a Mathematics program at ACC since it was founded. Mathematics is the largest program at the college in size of faculty, size of student enrollment, number of sections offered, and number of courses offered.

There was a time when developmental mathematics and mathematics were separate departments at ACC. The two were united about 10 years ago. While the size is extremely large, the faculty feels strongly that the advantages of being a single unit far outweigh the disadvantages. The curriculum is stronger with a single department, and the faculty is more knowledgeable about all aspects of the curriculum. Every full-time faculty member is expected to teach both developmental and college-credit courses.

As at most institutions, the mathematics program is mostly a service program. The department is centered on service to all students. The department offers a sequence of developmental courses to allow everyone, no matter their background or current level of mathematical knowledge, the opportunity to start

at an appropriate level course and move into college-credit courses. The department offers a broad range of college-credit courses that serve students in mathematics and sciences, business, social sciences, teacher certification, and workforce programs. The Department also offers courses to allow students to fulfill their General Education and Core Curriculum mathematics requirement while learning mathematical skills that would be useful in their chosen profession.

The quality of the Mathematics program is dependent upon the quality of the faculty. Despite the size of the mathematics faculty, one of the greatest strengths of the program is the high quality, student-oriented faculty. The Department seeks to maintain that high quality. Mathematics is a difficult subject for many students, and the instructor is very often an integral part of the student success.

The Department also seeks to stay current in both the curriculum and pedagogy. The Department is constantly assessing the success of the curriculum and revising as needed. The Department has a Course Committee for every course offered. That committee is composed of faculty members who are interested in the course and who usually teach the course regularly. The Course Committee is the watchdog group that does all the detailed analysis and makes the recommendations on the course to the Department. Every course is reviewed at least every two to three years. Additionally, the Department annually collects data from OIE to check that the course curriculum appropriately prepares students for the next course. Much more data than is required by the Institutional Effectiveness measures is collected and analyzed.

One of the major developments in teaching mathematics is the use of technology. When used properly, technology can accelerate, enhance, and augment understanding and knowledge, and support students in handling computations. The Department is working to acquire the resources necessary to properly support instruction and to maintain currency in the curriculum. This is one of the Department's major challenges.

STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS (SWOT)

List the names of people who participated in the SWOT and their association with your program.

Name **Dr. Constance Elko** ACC Faculty Industry Representative
 Student

Name **Clarence McGuff** ACC Faculty Industry Representative
 Student

Name **Christina Downs** ACC Faculty Industry Representative
 Student

Name **Michael Huff** ACC Faculty Industry Representative
 Student

Name **Wayne Rogers** ACC Faculty Industry Representative
 Student

Name **James Heath** ACC Faculty Industry Representative
 Student

Name **Sherry Dye** ACC Faculty Industry Representative
 Student

Summarize the findings of the SWOT analysis. Focus on the top 5 or 6 issues and answer the following questions:

Strengths: In what does your program excel?

Quality and dedication of faculty, both full-time and adjunct
Quality of instruction

The Math Manual provides information and a balance between structure and flexibility.

Transferability of courses to 4-year institutions

Prepare students well for transfer, and for workforce

Broad offerings of courses- sessions, days/times

Serve all students at every level

Faculty work hard on behalf of students

Weaknesses: What are the aspects of your program, which, if not addressed, will impede the area's future?

Lack of prerequisite control to assure students are in appropriate classes

Difficult to communicate when department is so large and spread out,

Politics and territorial bickering in the department

Strained internal communication when adjuncts are afraid to speak up

Opportunities: What factors does your program need to take advantage of in order to enhance the quality of the area?

Grant opportunities

Take advantage of the technology community surrounding us

Opportunity to promote more than the minimum amount of math

Threats: What are the external factors that could negatively impact your program's future?

Lack of technology to support instruction

Lack of funding for technology,

Lack of appropriate time release to handle administrative duties, and to work on curriculum development

Administrative rules do not reflect the differences in the needs of departments,
Administrative interference in mathematics departmental matters
Fiscal competence of the administration

Discuss changes from the program's previous SWOT analysis.

There is very little change since the last program review. The major strengths, weaknesses, opportunities and threats are all very similar, though stated in somewhat different terms. The Department has seized on some opportunities such as obtaining grants, and some issues related to professional development, but more needs to be done. Everything was greatly impacted by the financial situation of the college. The need for more full-time faculty and the need for more technology resources have actually gotten worse. Professional development was impacted by the lack of funds to support travel to conferences. The Department has seized every opportunity it can, but while it has offered internal professional development activities, the need for travel funds is still there. It is important that faculty are able to interact with faculty from many institutions. There was some progress on technology in that we did get Mathematica and computer classrooms at some campuses. The problem is that the need increases faster than the funding. It is hoped that the tax increase will allow for appropriate funding.

ANALYSIS

[a] Relevance of the program to College mission and desired ends

Mission:

Review the program's purpose statement. Verify that the statement is current and accurate and reflects the mission of the college as a whole or update the purpose statement.

The Self-Study team reviewed the program purpose statement and found (select one):

The purpose statement is current, accurate, and reflects the mission of the college.

The purpose statement was revised as shown below:

Desired Ends (Board Policy A-2. Intended Outcomes)

How well does the program support the intended outcomes of the college by providing "service-area adults with the postsecondary and higher education they need and can use for productive useful lives?"

The structure of the mathematics program does an excellent job of providing service-area adults with postsecondary and higher education

mathematics courses. The program provides a variety of courses at the developmental level, offers the freshmen and sophomore level college-credit mathematics courses that support the entire range of programs of study leading to an Associate degree or Certificate, and offers the mathematics courses that support the vocational and technical programs at Austin Community College. All credit courses, except one, transfer to local, area, and state four-year institutions. The one course which does not transfer is a course which specifically supports workforce programs.

The mathematics courses are designed to offer students the appropriate mathematical skills and critical thinking skills necessary for their program of study. There are courses that support the mathematical needs and critical thinking skills of liberal arts programs, courses that support social and behavioral sciences programs, vocational programs, business programs, and all the mathematics, science and engineering programs.

Mathematics is a requirement in both the SACs General Education courses and in the state of Texas Core Curriculum program. The mathematics program offers a wide variety of courses to support these.

In what ways does the program demonstrate an open, responsible exchange of ideas?

The mathematics program is concerned with developing the skills necessary to precisely define, model, analyze and solve problems. To achieve that, students need computational skills and critical thinking skills. The mathematics program supports these through a variety of courses. The courses are defined through course committees which set the curriculum to be covered. Membership on Course Committees is open to all interested faculty. Instructors are free to meet the departmental curriculum in their own individual ways. Most instructors use several methods in presenting the material- lecture, group activities, projects, etc.

The Mathematics Department has monthly departmental meetings to discuss issues related to the curriculum and has committees to handle the detailed work.

Membership on committees is open to all interested parties and departmental meetings are open meetings with announced agendas.

In what ways does the program provide an open door to educational potential?

The mathematics department is aware that mathematical competency is often an obstacle to success and achievement for many in society. Whatever the current level of mathematical skill of a student, the mathematics program has the appropriate course for them to begin their studies.

The mathematics program offers developmental mathematics courses at four different levels. Students who come with diverse mathematical backgrounds are able to begin their mathematics studies at the proper level and follow a sequence that will prepare them for the appropriate college level mathematics

courses. The developmental mathematics courses are also designed to help students move into appropriate college credit courses as quickly as possible.

The mathematics program offers a wide variety of freshmen and sophomore level college-credit courses to support all academic and workforce programs of study .

The Department works with advisors and counselors through written documents and personal interviews of students to try to assure that students are placed into the appropriate course for their current knowledge level and their future studies plans.

The mathematics department offers developmental mathematics and credit mathematics courses at every campus, all days and times of day, in various session lengths, and in various formats. The mathematics courses are designed and structured with appropriate contact hours so that students spend sufficient time to master the necessary skills.

All incoming students are assessed for placement into the appropriate mathematics course. The department also uses pretests at the beginning of the semester to serve as a check on placement. Additionally, the college supports a longer "level change" period in order to assure that students are in the appropriate level course.

In what ways does the program take targeted action to address internal needs within available resources?

The mathematics program uses Institutional Effectiveness measures and the Developmental Education Plan Effectiveness Update to annually check on the success of students moving through the sequence of mathematics courses. Whenever measures are not met, the department reviews and studies the data, and then writes an action plan to address the issues identified.

The Mathematics Department maintains a Course Committee for every mathematics course. The Course Committee is responsible for developing and revising the curriculum, and for writing the manual pages for the course. Course Committee members are also expected to serve as reviewers of faculty evaluation portfolios for the course. Courses are generally reviewed every three years, unless effectiveness measures indicate an earlier need. The Mathematics Department also annually publishes a Mathematics Manual which gives all faculty detailed descriptions of courses. The Manual contains sections of Notes to Instructors on every course. The notes define the structure of the course, alert faculty to the emphasis the department desires. Course committees consult with other departments about the mathematical needs of their students and revise courses as needed.

Departmental Committees are also used to study a variety of topics and issues that involve multiple courses. Committees report and present recommendations to the Mathematics Department which then determines the action to be taken on the situation.

In what ways does the program demonstrate a commitment to integrity and exemplary standards?

The Mathematics Manual is a commitment to exemplary standards and integrity. The document allows the department to provide every faculty member the information needed to deliver a high quality course for the students. The Manual also allows the department to have a basis for doing evaluation of courses and the faculty who teach them.

The Mathematics Course Committees are committed to the highest standards for courses, and carefully monitor and design the course and the course information.

The Mathematics Department is aware of and follows Best Practices for developmental education, and distance education. The Department is a participant in the American Mathematical Association of Two-Year Colleges.

Every college-credit course, except for one workforce course, transfers to local, area, and statewide four-year institutions. Austin Community College is one of the most highly rated institutions in Texas for students transferring to four year institutions.

In what ways does the program demonstrate personal and professional ownership that generates accountability?

Faculty have personal and professional ownership of the sections that they teach, and are personally accountable to the department for the sections that they teach. Course Committees provide the basic curriculum for courses, but instructors are free to present the curriculum in their own individual way and are accountable for covering the course material and for their pedagogical choices.

The departmental faculty evaluation process requires instructors to write a description of "How I Taught the Course." Independent reviewers use the "How I Taught the Course," and the instructors course documents to hold faculty accountable for covering the departmental curriculum. The Department Chairs use the results of the independent reviews, the student evaluations, the faculty input form and other information to assess the quality of the teaching and the coverage of the appropriate material.

Course Committees are composed of instructors who are interested in the course and who usually teach the course. The Committees are accountable to the Department for the course and the department uses the institutional effectiveness measures to assess the success of the sequence of courses.

[b] Responsiveness to community needs and satisfaction of community demand

In what ways does the program address a verifiable need for the student, community, and society?

In the state of Texas all students enrolled in a state sponsored school are required to take at least one 3 hour class of mathematics above a certain level. This creates a demand for not only classes of this level but a supporting group of remedial classes for the under-prepared student. Since most of the other

schools in the Austin area are universities it falls to ACC to offer these remedial level classes.

Since math is not only a major in its own right but also offers service courses for almost every other major taught it becomes necessary for a math department to offer a wide range of classes. ACC has one of the broadest ranges of math classes found in a community college, 20+ different courses and several support labs. We offer a full range of remedial classes, several classes that fulfill the state requirement, a number of specialty classes and upper level classes. Please see the list at the end on this section. One of the strengths of our program is the transferability of the math classes. With only one exception all classes taught in the Math Department, with a MATH preface, transfer to the University of Texas as a corresponding class. The one exception is a course designed to meet the state 3 hour rule for subjects that normally do not expect to extend beyond the Associate level.

Describe the results of the program's most recent assessment of community need.

The department reviews and revises courses on a regular basis, at least at the time that the text goes into revision, approximately every 3 to 4 years. This is also done if a need is brought to the attention of the department by a student, faculty member, another school or the business community. Examples of this include the inclusion of calculators and computers in the curriculum, the development of a program to aid in the training of secondary school teachers, and the revision of the Business Calculus syllabus to fit closer to the syllabus of schools to which our students transfer. We also remove or add courses as the need changes, notice 0162 and 0360 below.

Course List:

MATD 0162 TASP Math Prep - This course is to be dropped. The TASP is no more.

MATD 0330 Basic Math Skills

MATD 0360 Topics in Developmental Math

MATD 0370 Elementary Algebra

MATD 0390 Intermediate Algebra

MATD 0370/0290 Fast Track Elem./Intermediate Algebra

MATH 1314 College Algebra

MATH 1316 Trigonometry

MATH 1324 Math for Business and Economics

MATH 1332 College Mathematics

MATH 1333 Math for Measurement

MATH 1342 Statistics

MATH 1350 Math for The Middle School Teacher Certification I

MATH 1351 Math for The Middle School Teacher Certification II

MATH 1425 Business Calculus I

MATH 1476 Business Calculus II

MATH 2412 Precalculus
 MATH 2413 Calculus I
 MATH 2414 Calculus II
 MATH 2415 Calculus III
 MATH 2254 Calculus IV
 MATH 2318 Linear Algebra
 MATH 2420 Differential Equations

Note: Beginning in the fall of 2004 we will be adding a class MATH 2372 entitled "Functions and Modeling for Secondary School Teachers". This is part of a program designed by the Math Department to help meet the need for certified middle school and secondary school teachers in the state of Texas.

How do the program's five-year enrollment trends compare with those of the College overall?

From departmental records and the Budget Planning data for the last 4 school years (all that is available to us at this time) we have the following:

MATD Total enrollment

FY 1999	11,379			
FY 2000	10,553	Down	7.259%	
FY 2001	10,629	Up	0.72%	
FY 2002	12,303	Up	15.75%	99 – 02 total 8.16%

MATH

FY 1999	13,615			
FY 2000	13,536	Down	0.58%	
FY 2001	13,394	Down	1.049%	
FY 2002	13,737	Up	2.56%	99 – 02 total 0.896%
				MATH/MATD combined Up 4.185%

ACC Totals

FY 1999	170,465			
FY 2000	165,988	Down	2.63%	
FY 2001	169,873	Up	2.34%	
FY 2002	180,408	Up	6.20%	99 – 02 total 5.83%

With enrollment information for only four years available we see the following trends:

1. While there is a dip in enrollment between the first and second years for the college the next two years showed an increase resulting in an overall increase of approximately 5.85%.
2. In the Math Department College credit classes fell slightly for the first two years and rose the last year for a modest gain of 0.896% while the Developmental classes dropped noticeably between year one and two but made even greater gains in the next two years to end up with an 8.16% overall gain.

This means that the Department as a whole showed a 4.185% overall increase from the 1999-2000 school year to the 2002-2003 school year.

3. While the Math Department enrollment might lag slightly behind the ACC enrollment it does in fact emulate it closely.

[c] Accessibility to students and identification of unnecessary barriers

Analyze when and where courses are offered (by campus, time of day, mode of delivery).

There are several core Mathematics courses, each of which takes up at least 10% of the total sections offered. These courses are offered at every campus. They are College Algebra (MATH 1314), College Mathematics (MATH 1332), Math for Business and Economics (MATH 1324), Elementary Statistics (MATH 1342), and Calculus I (MATH 2413). Each of these courses is offered at every campus. Some of the other courses and labs are more specialized and tend to be offered at all of the larger campuses.

The only sections offered in Distance Learning are MATH 1314 and MATH 1342.

The pattern is similar for Developmental Mathematics. The core classes, which each take from 18% to 35% of the total sections offered, are Basic Math Skills (MATD 0330), Elementary Algebra (MATD 0370), and Intermediate Algebra (MATD 0390).

All three core courses are offered at all campuses and in Distance Learning. They are spread out about the same at all campuses, as illustrated in Graph C1 (attachment).

Where more than one section of a Mathematics or Developmental Mathematics course is offered at the same campus, usually one will be offered during the day and the other in the evening.

List the number of sections taught (by location).

See attachment (FTadjdata.doc)

List the number of sections closed or canceled per course.

Full (closed) classes

MATH
1999-2000

MATH	Fall 99	Spring00	Sum 00
1314	9	5	1
1316	5	2	0
1324	1	0	0

1332	3	1	0
1335	1	0	1
1342	1	0	0
1425	0	0	1
1426	0	0	1
2413	1	1	1
2414	1	2	0
2415	0	0	1
1674	2	0	0
1684	0	1	0
1764	2	0	0
2164	1	0	0
Total	27	12	6

2000-2001

MATH	Fall 00	Spring 01	Sum 01
1314	6	4	0
1316	1	2	0
1332	9	3	0
1335	1	1	1
1336	0	1	1
1342	0	0	1
1425	0	0	2
1426	0	2	1
2412	3	0	0
2413	0	0	1
2414	0	1	0
2415	0	1	1
Total	19	15	8

2001-2002

MATH	Fall 01	Spring02	Sum 02
1314	6	3	0
1316	1	2	1
1332	1	3	2
1333	0	1	0
1425	0	1	2
1426	2	2	2
2412	0	0	1
2413	1	0	0
2414	1	1	0
2415	0	0	2
2420	1	1	0
Total	13	14	10

2002-2003

MATH	Fall 02	Spring03
1314	7	3
1316	0	2
1332	7	3
1342	1	0
1350	1	0
1425	1	0
1476	2	4
2413	1	0
2414	1	1
Total	21	13

Full (closed) sections
Developmental Math

1999-2000

MATD	Fall 99	Spring 00	Sum 00
330	15	26	3
350	42	4	0
370	13	17	0
390	5	2	2
Total	75	49	5

2000-2001

MATD	Fall 00	Spring 01	Sum 01
290	0	1	0
330	41	17	5
370	31	20	5
390	8	11	1
Total	80	49	11

2001-2002

MATD	Fall 01	Spring 02	Sum 02
330	47	36	14
370	42	33	12
390	16	10	2
Total	105	79	28

2002-2003

MATD	Fall 02	Spring 03
330	70	58
370	38	39
390	24	14
Total	132	111

Canceled Classes by Course

MATH

1999-2000

MATH	Fall 99	Spring 00	Summer 2000
1314	0	5	1
1316	1	2	0
1324	1	0	1
1332	3	2	2
1335	0	0	1
1336	0	0	1
1342	1	0	1
1425	0	0	2
1426	0	0	2
2318	1	0	0
2414	0	1	0
1674	0	1	0
1684	0	1	0
1764	0	1	0
Total	7	13	11

2000-2001

MATH	Fall 00	Spring 01	Summer 2001
1314	5	3	2
1316	1	2	0
1324	0	4	2
1332	3	1	1
1333	1	0	0
1335	0	0	0
1336	0	0	0
1342	1	1	0
1425	0	0	0
1426	0	1	0
2254	0	1	0
2318	0	0	0
2412	0	0	1

2414	0	0	1
2420	0	0	1
Total	11	13	8

2001-2002

MATH	Fall 01	Spring 02	Summer 2002
1314	1	7	2
1324	3	0	1
1332	2	0	1
1350	1	0	0
1351	0	1	0
2413	1	0	1
2420	0	1	1
Total	8	9	6

2002-2003

MATH	Fall 02	Spring 03
1314	2	0
1324	1	0
1332	1	2
1425	0	1
2413	1	1
2420	1	1
Total	6	5

Canceled Classes by Course

DEVELOPMENTAL MATH 1999-2000

MATD	Fall 99	Spring 02	Summer 02
0330	1	1	2
0350	1	0	0
0370	4	2	3
0390	2	1	1
Total	8	4	6

2000-2001

MATD	Fall 00	Spring 01	Summer 01
0330	2	0	2
0360	1	0	0

0370	9	6	1
0390	1	2	8
Total	13	8	11

2001-2002

MATD	Fall 01	Spring 02	Summer 02
0330	0	3	0
0370	2	3	2
0390	1	2	1
Total	3	8	3

2002-2003

MATD	Fall 02	Spring 03
0330	0	0
0370	2	1
0390	0	0
Total	2	1

How does each of the five-year demographic trends (gender, ethnicity, age group) for this program compare to the overall college trend? (List the source of your information.)

Enrollment in Developmental Mathematics courses is higher for Hispanic and Black students than the ACC average. Within both the Mathematics and Developmental Mathematics departments, it can also be observed that Hispanic and Black students have a higher enrollment in the lower level courses. See graphs C2 and C3 in attachments.

MATD	MATH	ACC	
White	55%	62%	62%
Black	10%	6%	7%
Hispanic	28%	20%	21%
Asian-American	3%	8%	6%

Enrollment is fairly representative of all demographic groups in College Algebra (MATH 1314), compared to the college as a whole. Asian-American students have a noticeably higher enrollment in higher level courses, such as Calculus I (MATH 2413). See graph C4 in attachments.

MATH 1332	MATH 2413	MATH 1314	
White	68%	56%	62%
Black	7%	4%	6%
Hispanic	20%	16%	23%
Asian-American	3%	15%	5%

Gender

Female students are slightly over-represented in Developmental Mathematics and slightly under-represented in Mathematics, compared to the college as a whole. See graphs C5, C6 and C7 in attachments.

	MATD	MATH
Male	43%	51%
Female	57%	49%

The most notable difference is in Calculus I (MATH 2413), where male students greatly outnumber female students compared to the Mathematics department as a whole. It may also be noted that female students outnumber male students in College Mathematics (MATH 1332), a common exit course for mathematics.

MATH 1332	MATH 2413
Male	38%
Female	62%

Age

Students enrolled in Mathematics and Developmental Mathematics courses are noticeably younger, on average, than students enrolled in other courses at ACC. This may be due to the fact that transfer students and UT students typically enroll in mathematics courses. See graphs C8 and C9 in attachments.

Average age of ACC student:	25.8
Average age of MATD student:	23.8
Average age of MATH student:	23.9

Reports from OIE indicate that young students have higher non-mastery rates than older students. This could help explain some of the mathematics non-mastery rates, or vice versa.

Age in different Developmental Mathematics courses does not vary by much. Students in Basic Math Skills (MATD 0330) are on average slightly older, perhaps because this is a natural placement for students who have been out of school for many years.

Age in Mathematics courses varies a bit more. The average student in College Mathematics (MATH 1332) is almost 2 years older than the average student in College Algebra (MATH 1314).

Average age of MATH 1332 student: 24.4

Average age of MATH 1314 student: 22.7

Sources: All ACC data taken from ACC Fact Book 2002-2003 online. Mathematics and Developmental Mathematics data taken from OIC.

Identify any unnecessary barriers to students, especially those who are educationally disadvantaged and not well served by other colleges.

Since all three core courses are offered through distance learning and at every campus, we cannot identify any unnecessary barriers in Developmental Mathematics. The only purchase necessary for students is the textbook and a simple calculator.

There is not enough demand for some of the higher level Mathematics courses to offer them at every campus, so they tend to be offered where the need is greatest. For some of these courses, students are required to have access to technology such as a graphing calculator or graphing software. These facilities are also provided by the college if a student wishes to do all of his or her coursework on campus. As a department, we are very cautious about what we require students to have access to, and thus do not feel that any unnecessary barriers are present.

[d] Student outcomes including participation and successful-completion rates

How do course completion rates (A-B-C-D rates) for courses within this program compare to College norms?

Participation:

Assessed by the number of students in all Math classes and the number of sections.

Academic Year	Mathematics
Developmental Mathematics	

Students Enrolled (Fall/Spring/Summer):

'00 – '01	13,385	10,608
'01 – '02	13,723	12,263
'02 – '03	13,565	13,206

Sections Taught

'00 – '01	539	576
'01 – '02	542	579
'02 – '03	515	586

Conclusion: No significant trend except for the ~10% increase in Dev. Math enrollment.

Completion, non-transfer, withdrawal, and non-mastery rates*

* Percentages are weighted averages.

Year to year Comparisons

Mathematics

Academic Year (F, Sp, Sum)	Completion (A, B, C, D)	Non-Transfer (D & F)	Withdrawal (W)	Non-Mastery (D, F, & W)
'99 – '00	56%	11%	35%	46%
'00 – '01	60	12	33	45
'01 – '02	61	10	32	42
'02 – '03	63	12	29	41

Developmental Mathematics

Academic Year (F, Sp, Summer)	Completion (A, B, C, D)	Non-Transfer (D & F)	Withdrawal (W)	Non-Mastery (D, F, & W)
'99 – '00	58%	21%	25%	46%
'00 – '01	57	14	25	39
'01 – '02	58	16	22	38
'02 – '03	57	15	22	37

Conclusion: Withdrawal & Non-Mastery rates decreasing for both Math and Dev. Math.

Completion rates increasing for Math and steady for Dev. Math.

Year to year Comparisons with the last program review ('97-'98 and '98-'99)

Mathematics

Academic Year (Fall & Spring)	Mastery (A, B, C)	Non-Transfer (D & F)	Withdrawal (W)
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'97 – '98	56%	13%	31%
'98 – '99	56	13%	31%
'99' – '00	51	12	37
'00 – '01	53	12	35
'01 – '02	55	11	34
'02 – '03	56	13	31

Developmental Math

Academic Year (Fall & Spring)	Mastery (A, B, C)	Non-Transfer (D & F)	Withdrawal (W)	In-Progre (IP)
'97 – '98	57%	20%	23%	-
'98 – '99	57	23	20	-
'99' – '00	53	22	25	<0.1
'00 – '01	52	15	25	8
'01 – '02	51	17	23	9
'02 – '03	51	16	23	10

Conclusion: In Math, the latest year ('02-'03) is the same for the last review. However, there was an anomalous drop in "Mastery" (the measure of the last review) from the last review and the first two years of this review ('99-'01). There was a corresponding jump in withdrawal rates for those two years.

For Dev. Math, there was a noticeable drop in "Mastery" for this review compared with the previous one. The Department has had a major revision in the developmental courses since the last program review. Effective for the Spring 2000 semester, the Mathematics Department had been forced by the college administration to have a developmental sequence of three courses rather than four. The sequence has very little room for repetition of material and that has had an impact on mastery. Effectiveness Measures that follow students in the new three course sequence have indicated that there are some issues that need to be addressed. The Department has been constantly revising the curriculum, but problems continue. The Department continues to address the issues.

Comparison with other departments in ACC - F '01 (>500 students in an instructional area)

Mathematics

- Mathematics had the 3rd highest non-transfer rate at 11.0% (ACC 8.7%) Government & History were 1st & 2nd.
Four years earlier Math was also 3rd highest behind Gov't and Economics.

- Mathematics' withdrawal rate was highest with 34.3% compared with 22.5% for ACC.

Four years earlier Math was 4th highest in withdrawal rate.

The top reasons given for withdrawal were "conflict between class and job" (23.9%), "course too difficult" (11.8%), course took up too much time" (8.7%), and faculty initiated ("excessive absences / missed tests or assignments / lack of progress / lacks pre-requisite") (11.2%).

- Math also had the highest non-mastery rate at 45.3% compared with 31.2% for ACC.

Four years earlier Math was also 4th high in non-mastery.

Developmental Mathematics

- Compared with the other two ACC Developmental departments, Dev. Math had the highest rate of non-transfer @ 16.5% (ACC 15.2%) & non-mastery @ 37.5% (ACC 38.4%, but the lowest withdrawal rate @ 21.0% (ACC 21.2%). Dev. Math had 9.0% IP vs. 9.3% for Writing and 1.5% for Reading.

- The reasons for Dev. Math withdrawal are similar to those for Math (above) totaling 59.9% for the "underprepared or overcommitted" related categories.

Conclusion: Compared to other ACC departments Math remains the 3rd highest in non-

transfer rate, but has moved from 4th highest to highest in withdrawal rate

and non-mastery rate.

The top reasons for withdrawal in Math listed above total 55.6% and all point to the student being underprepared or overcommitted. High withdrawal has been historically true in Math classes at ACC and other community colleges. Hopefully, when the registration system automatically screens out those who not have the pre-requisite (promised), this will improve. Although the withdrawing students do not fault "inadequate counseling" (0.4%), they may not realize it's effect by the time they withdraw. Another area of investigation related to withdrawal are the students who drop before the official 12th roster; this data is not compiled but has been requested. This very early "withdrawal", which is not in our numbers may limit access to students who are turned away before the 12th day and reduce the class size. The withdrawal percentage and reasons are quite similar to those from the last program review. Math faculty are aware of the typical high withdrawal rate and are urged to review pre-requisites and other commitments on the first day as well as to be sure students are warned of the time required outside of class for a Math course.

Comparison with other courses in ACC – F'01

Mathematics (>250 students in a course)

- For non-mastery, Math had 3 of the top 4, and 6 of the top 9. For withdrawal, Math had 4 of the top 6; those with higher rates were in Biology & Computer Science.

Course	% non-mastery	"rank"*	% withdrawal
Precalculus	51.3	2	38.
College Algebra	51.2	3	38.0
Calculus I	49.4	4	**
Calculus II	47.4	6	**
Business Calc. I	44.9	8	35.9
Math for Bus/Eco	43.7	9	33.7
ACC average	31.3%		22.5

*26 courses had higher non-mastery rates than the ACC average

**These courses were below the ACC average (so unknown %)

Developmental Mathematics (>20 students in a course)

- Dev. Math had the top three courses with non-mastery: Topics in Dev. Math (57.1%, TASP Math Prep (49.3%) and Elementary Algebra (39.1%) and the 6th highest with Intermediate Algebra (37.4%). The ACC average is 36.4%.

- For Dev. Studies courses with in-progress (IP) non-mastery rates above the college average, three of the four courses were in Dev. Math: Intermediate Algebra (fast-track) (20.8%, Intermediate Algebra (11.7%), and Elementary Algebra (9.4%); ACC average was 7.9%.

Conclusion: In Math, the focus described in the previous conclusion should be on Precalculus, College Algebra, Business Calculus I, and Math for Bus/Eco. The lack of non-mastery for Calculus I and II, was due to non-transfer grades (D & F) rather than withdrawal.

In Dev. Math, the non-mastery rate for Topics in Dev. Math and TASP Math Prep were significantly higher than the college average for developmental courses. It should be noted that the withdrawal data for MATD 0162 TASP Math Prep can be misleading. Students are enrolled in this course specifically to get help in passing the TASP test. Many students drop MATD 0162 TASP Math Prep

because they take and pass the TASP test while enrolled in the course. There is no code on a withdrawal slip to note that.

Transfer Success to Four-Year Institution

ACC has articulation agreements with about 16 institutions. However the majority transfer to UT, Texas A & M, and Texas State at San Marcos.

University of Texas

UT enrolls the majority, 63%, of ACC's transfer students. Data from UT indicate, on average, ACC transfer students do well in their first semester. In 1996 ACC students earned fall semester overall average GPA of 2.78 compared with 2.75 in 1994 and compared with 2.80 and 2.75 in '96 and '94 respectively for all transfer students (all colleges). However when looking at the Math discipline, the ACC transfer student GPA was 2.13 (same in '96 & '94). This compares with 2.26 and 2.23 in '96 & '94 for students transferring from all colleges.

Texas A & M

TAMU uses a method called Foundation Course Tracking in order to provide analysis of the performance of students who transfer there from ACC. Rather than an overall GPA, TAMU links a "foundation" course taken at the institution from which students transfer with its "target course taken at TAMU, the calculates an average GPA for the course for ACC transfer students, all transfer students, and all "native" students (those who took both the foundation and target courses at TAMU).

Data was available for 1995, 1996, & 1997. Having identified that set of TAMU target courses for which an ACC Math course was the foundation course, a weighted average GPA for the TAMU target course has been calculated for ACC transfer students, all transfer students and TAMU "native" students.

In each year there were 7 ACC foundation courses and there were 12, 14 and 15 TAMU target courses for '95, '96 & '97 respectively.

Year	ACC Transfer Students population	ACC Transfer Students GPA	All Transfer Students population	All Transfer Students GPA	TAMU Native Students population	TAMU Native Students GPA
1995	98	2.37	3,792	2.22	13,117	2.50
1996	127	2.38	5,333	2.25	17,575	2.48
1997	93	2.34	5,489	2.28	18,134	2.52

In 1997, of the 7 ACC Math foundation courses, four had populations greater than 10, and thus might be statistically significant for a breakdown by ACC math course.

ACC Math Course	population	Ave. GPA
Math for Bus/Eco	18	2.17
College Algebra	15	1.74
Bus. Calculus I	38	2.67
Calculus I	11	1.99

Texas State (Data not available for Math)

First Fall Semester ACC Ave. GPA GPA for all transfer students

1997	2.50	2.45
1996	2.51	2.46
1995	2.52	2.43
1994	2.46	2.39
1993	2.54	2.44
1992	2.52	2.45
1991	2.36	2.32

Conclusion: ACC students compare favorably with all transfer students in terms of GPA earned in the first semester after transfer to UT, TAMU, and Texas State. The highest GPA for ACC students is for those transferring to UT, which is also true for all transfer students.

No Math specific data is available for Texas State. However, for ACC students in Math UT, the GPA is 2.13, compared with 2.78 for all ACC students. For TAMU math courses by ACC transfer students in their first semester, the GPA was 2.34 and 2.38 ('97 & '96) compared with 2.4 and 2.5 ('97 & '96) for all ACC transfer students.

What are the program completion or graduation rates (compared to intent as well as overall) for this program?

Graduation rates compared with other sciences

	97-98	98-99	99-00	00-01	01-02
Math	17	5	5	8	9
Biology	4	8	2	6	0
Chemistry	2	6	1	1	0
Physical Sciences	11	13	7	4	3
Physics	1	0	1	3	1

How do withdrawal rates for courses compare to College norms?

As discussed above, mathematics has some of the higher rates. That is not unexpected given the number of students, and the number of courses in the department. Many students try to "skip" classes and enroll in courses for which they are not prepared, even if they are advised properly. Most of those students are unsuccessful and thus the high non-mastery and withdrawal rates occur.

What do the results of the program's student learning outcomes assessments (departmental final exams, exit tests, standardized tests, etc.) indicate about the program?

Overall, the mathematics program is strong. The Department uses effectiveness measures to study whether courses in a sequence properly prepare the students for the next course. As a general rule, the Department meets the criteria on over 90% of its measures. There have been a couple of exceptions. Whenever, a criteria is not met, the department develops an action plan, implements it, and then analyzes the results. The Department collects data for all follow-on courses every year, even though that measure might not be part of the official effectiveness measures for that year.

[e] Measures of program quality and educational value added

- **Academic Standards**

What are the processes and procedures that the department uses to maintain academic standards and achieve consistency within the department?

The math manual has played a major role in maintaining academic standards and achieving consistency throughout all the courses in the mathematics department.

There is a course committee for each course. Each time the textbook for a course goes into a new edition, the course committee meets to review the course and make suggested changes in the curriculum. At that time, changes in the curriculum or course objectives are stated in the math manual. Suggested homework sets and course calendars are stated in the manual to help achieve consistency. As a final check, course materials are collected and evaluated with regards to the standards set by the course committee.

- **Curriculum**

What procedures are used to assure that the curriculum is current and adequately meets the needs of students?

The curriculum for a course is updated every time a textbook comes under review, which turns out to be about every 2 to 3 years. The committees that put together the new curriculum take into account institutional effectiveness measures, trends toward greater use of technology (computers and graphing calculators), personal experiences with students in higher level math courses, and expectations from universities such as the University of Texas.

Are learning outcomes defined for courses and the program? Yes No
 Are course texts up-to-date?. Yes No
 Are course and program listings in the ACC Catalog up-to-date? Yes No
 Do all courses have up-to-date syllabi on file? Yes No

Evaluate the use of instructional resources (including those in the library).

The library has played a substantial administrative role in helping the Mathematics Department operate. They maintain classroom and instructor sets of graphing calculators, and have contributed funds toward mutually beneficial software purchases (as in the purchase of Minitab for our Statistics course). Learning labs are used extensively by math teachers and students. Where available (at RVS), schedulable computer labs are also used by classes to work on projects using Mathematica or other educational programs.

Evaluate the extent to which technology impacts the mode of instruction, including the number of courses and sections taught via distance learning.

The number of sections of both computer-mediated and distance learning classes has grown. The department now offers a total of five different courses via distance learning and three courses through the computer-mediated approach. The Tables show the number of sections of each course offered.

Table: Number of Sections of Distance Learning Classes

	Sum02		Fall 02		Spring 03		Fall 03		Spring 04	
	11.5 wk	16 wk	12 wk	16 wk	12 wk	16 wk	12 wk	16 wk	12 wk	
MATD 0330	1	2	1	2	1	3	1	3	1	
MATD 0370	1	2		2	1	3	1	3	1	
MATD 0390	1	1		2	1	3	1	3	1	
MATH 1314	1	1	1	1	1	1	1	1	2	
MATH 1342		1		1		1		1		

Table: Number of Sections of Computer Mediated Classes

	Fall 02	Spring 03	Fall 03	Spring 04
	16 wk	16 wk	16 wk	16 wk
MATD 0330	2	6	7	5
MATD 0370	2	6	6	6
MATD 0390	1	5	5	6

In addition to computer-mediated and distance learning courses, technology continues to have an impact on instruction of college mathematics courses. For classes above the College Algebra level, students are required to have access to some form of technology. Most instructors use graphing calculators while some instructors use computer algebra systems like Mathematica or other computer-based technologies. The lack of dedicated computer labs has impeded this effort.

The College Algebra committee adopted a book that facilitates a technology-oriented approach, however, available technology resources lag behind demand. For example, there are not enough graphing calculators to satisfy faculty demand. There is a need for more training to help faculty best utilize the technology to remain current with the latest pedagogical theories.

Evaluate the extent to which instruction is focused on problem solving, active learning, and work-based elements.

While this will vary by instructor, the department makes a continual effort to ensure that teaching strategies are shared, with particular emphasis on active learning. For example, the Elementary Algebra course committee held several workshops in the past year where instructors met to share ideas. The methods employed by instructors include exploration projects using graphing utilities, emphasis on real-life applications, students working out problems on blackboard, group activities in class, and a mathematics learning journal, in which students give a candid account of their experiences learning each topic during the semester. We are working to increase the amount of technology-based exploration in the classroom, but currently lack the resources to do as much as we believe would be most beneficial.

List below the current discipline-specific courses within the program and the date of the latest review.

Course	Date of Last Review	Date
Course MATD 0162	Date of Last Review	Fall 03
Course MATD 0330	Date of Last Review	Spring 02
Course MATD 0370	Date of Last Review	Spring 04
Course MATD 0360	Date of Last Review	Spring 03
Course MATD 0390	Date of Last Review	Spring 04
Course MATH 1314	Date of Last Review	Spring 03
Course MATH 1316	Date of Last Review	Fall 02
Course MATH 1324	Date of Last Review	Spring 04
Course MATH 1332	Date of Last Review	Spring 04
Course MATH 1342	Date of Last Review	Spring 03
Course MATH 1350	Date of Last Review	Spring 03
Course MATH 1351	Date of Last Review	Spring 03
Course MATH 1425	Date of Last Review	Spring 04
Course MATH 1476	Date of Last Review	Spring 04
Course MATH 2412	Date of Last Review	Spring 03
Course MATH 2413	Date of Last Review	Spring 02
Course MATH 2414	Date of Last Review	Spring 02
Course MATH 2415	Date of Last Review	Spring 02
Course MATH 2420	Date of Last Review	Fall 03
Course MATH 2318	Date of Last Review	Spring 04
Course	Date of Last Review	
Course	Date of Last Review	
Course	Date of Last Review	

Course
Course

Date of Last Review
Date of Last Review

- **Faculty**

Do all faculty teaching in the program meet SACS requirements?

Yes No (if no, please explain) Since the Department teaches two levels of courses, there are different requirements for different faculty. All faculty who teach mathematics credit courses have the Master's degree and the 18 graduate hours or a letter of exception. Only two faculty have letters of exception. Faculty who teach only developmental courses have the Bachelor's degree.

What is the ethnic diversity of the faculty?

Faculty Diversity
Fiscal year 2002

Adjunct Facult	Female Count	Row %	Male Count	Row %	Total
White	52	45.6	62	54.4	114
Black, Non-Hispanic			3	100.0	3
Hispanic	1	11.1	8	88.9	9
Asian/Pacific Island	8	50.0	8	50.0	16
Group Total	61	43.0	81	57.0	142
Full Time					
White	14	48.3	15	51.7	29
Hispanic	1	16.7	5	83.3	6
Asian/Pacific Island	2	100.0			2
Group Total	17	45.9	20	54.1	37

What evidence is there that faculty are staying current in their respective disciplines and instructional methodologies?

Faculty are required to meet either a 12 hour (for full-time) or a 4-hour (for adjunct) annual professional development requirement. Almost every faculty member satisfies the requirement.

The Department hosts a Course Session Evening every August to help faculty become knowledgeable and to understand the courses that they will teach. The Department hosts a colloquium series in which faculty present talks on various teaching topics and techniques. The Department also brings in various outside speakers to address teaching and learning issues associated with mathematics. During 03-04, Gary Rockswold, Pat McKeague and Elaine Martin-Gay have been external speakers who came to ACC.

Various faculty members attend local, regional and national conferences. From those conferences they bring to ACC knowledge to help keep the department current.

What recognition has been given to faculty within the last year?

The American Association of Two-Year Colleges (AMATYC) has recognized the ACC Mathematics Department for the continuous success that ACC students have had in the AMATYC Mathematics Contest. Due to our exceptional performance, Mike Dellens has been asked to participate in an AMATYC panel for colleges.

The ACC Mathematics Students were # 1 in the Southwest region in the national AMATYC Math Contest again last year.

The Mathematics and Sciences Departments received a NSF grant to support a program in teacher certification. Stephanie Lochbaum and Allison Sutton are the lead faculty in the mathematics department on the grant.

Dr. Mary Parker will give an invited address at the national Statistical Association meeting in August.

Describe professional development activities in which program faculty participate. National conferences such as American Association of Two-Year Colleges, National Teachers of Mathematics, American Statistical Association, Joint AMS/MAA Mathematics Meetings, National Association of Developmental Educators.

State: Texas Community Colleges Teachers Association

Regional: T3 Conferences, Addison-Wesley Mathematics Teachers Workshops, Prentice Hall Mathematics Teachers Workshops

Local: ACC Mathematics Dept. Course Sessions Evening, ACC Mathematics Dept. Colloquia

Motivating Developmental Mathematics Students
The Mathematics Dept.

What percent (and the total number) of faculty participate in formal professional development activities on a regular basis?

36 full-time faculty 100% participate on a regular basis

211 adjunct faculty about 90% participate on a regular basis

Describe the types of discipline-related professional development activities offered.

The Department hosts a Course Session Evening every August to help faculty become knowledgeable and to understand the courses that they will teach.

The Department hosts a colloquium series in which faculty present talks on various teaching topics and techniques.

The Department also brings in various outside speakers to address teaching and learning issues associated with mathematics. During 03-04, Gary Rockswold, Pat McKeague and Elaine Martin-Gay have been external speakers who came to ACC.

During Faculty Development Day, the department usually has some discipline based presentations.

What percent of sections do full-time faculty teach?

Table: Percentage of Sections Taught by Full Time Faculty

	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY02	FY03
MATH	25%	27%	28%	32%	34%	35.2%	34.8%	39.2%	36.2%
MATD	29%	28%	28%	24%	21%	18.6%	25.5%	24.6%	24.6%
TOTAL	72%	18%	18%	18%	17%	26.4%	27.7%	31.1%	29.4%

What percent of contact hours do full-time faculty teach?

Faculty Contact Hours

MATH

	Full Time	Adjunct
FY 1998	35.6%	64.4%
FY 1999	34.8%	65.2%
FY 2000	34.6%	65.4%
FY 2001	39.6%	60.4%
FY 2002	41.6%	58.4%

Developmental Math

	Full Time	Adjunct
FY 1998	23.2%	76.8%
FY 1999	20.1%	79.9%
FY 2000	22.1%	77.9%
FY 2001	25.2%	74.8%
FY 2002	24.8%	75.2%

Are student evaluations of instruction within acceptable range? Yes No

To what extent are alternative modes of instruction incorporated into classes?

For Developmental Mathematics courses, the three major courses are all offered as lecture courses, distance learning classes and as computer-mediated classes. All three formats are offered in the 16 week session at all the major campuses. In the 12 week session, there are distance learning classes and lecture formats and the 8 week session offers lecture classes.

For Mathematics courses, there are distance learning sections for College Algebra and Elementary Statistics.

- **Student Satisfaction**

Do student course evaluations demonstrate satisfaction with courses?

Yes No

[f] Adequacy of program resources and efficiency of resource use

Describe the overall adequacy of resources (human, technological and capital, facilities, and fiscal) available to the program for providing effective program delivery and outcomes.

The number of full-time faculty is not sufficient. In order to staff classes, the department has to maintain an eligibility list of about 200 adjunct faculty members. While some new full-time faculty have been hired, the total number has not increased significantly due to losses. The Department has as its number one recommendation the hiring of new full-time faculty.

The Department is also severely short on technology resources and facilities. Classes that require software cannot be scheduled in rooms with the software because there are insufficient available facilities.

The Department has worked very hard to acquire as much free equipment as possible, but the amount available free is not nearly sufficient to meet the needs of the department. More and more textbooks are written with technological resource availability expectations. The Mathematics Department has no monetary resources to support the acquisition.

In Spring 00, the Mathematics Department did acquire a 30 concurrent user license for the computer-based algebra system Mathematica. This was acquired through normal departmental budget funds.

The Technology Plan supported setting up mathematics computer classrooms at RGC, RVS, PIN and CYP. The rooms at RGC and RVS have only 12 computers to support classes of 36 students. The rooms at PIN and CYP support computer-mediated developmental classes as well as mathematics classes. EVC has no mathematics computer classroom and there are scheduling problems there with the classes that need facilities. RGC has the one room with 12 computers. RGC

offers many of our most advanced mathematics courses and a second larger room is essential there.

In 03-04, the Technology Plan funded \$5000 for software to support classroom instruction. The Mathematics Department was able to acquire additional funds from the library and the Learning Labs to acquire a 75 concurrent user license for Minitab to support the Elementary Statistics classes.

The number of available TI-presenters and graphing calculators to support faculty in instruction is woefully insufficient, as is the number of calculators available for student use. All TI-presenters have been acquired through the Texas Instruments free equipment program. The Mathematics Department is diligent in processing its annual order, but the type of resources available have become more limited.

The Mathematics Department does its very best to offer courses with the limited resources it has; however, the lack of resources does have an impact on the methodology used in instruction and the currency of instruction.

What is the ratio of full-time to adjunct faculty (by course and for the program overall)?

Developmental Math

Course	Spring 03		Sum 03		Fall 03			
	#secs	Adj %	Adj:FT	#secs	Adj%	Adj:FT	#secs	Adj%
330	79	87%	7:1	28	75%	3:1	112	90%
360	2	100%	All				2	100%
370	86	58%	1:1	31	68%	2:1	102	68%
390	58	62%	2:1	23	74%	3:1	61	61%
290	1	100%	All				1	100%
Total	235	74%	3:1	86	73%	3:1	287	76%

MATH

Course	Spring 03		Sum 03		Fall 03			
	#secs	Adj%	Adj:FT	#secs	Adj%	Adj:FT	#secs	Adj%
1314	57	81%	4:1	29	69%	2:1	65	74%
1316	13	31%	1:2	5	60%	1.5:1	16	69%
1324	15	53%	1:1	6	50%	1:1	14	64%
1332	31	87%	7:1	15	67%	2:1	35	91%
1333	2	50%	1:1				2	100%
1342	14	71%	2:1	8	88%	7:1	18	61%

1350	2	0%	None	2	50%	1:1	3	0%	None
1351	3	0%	None	2	50%	1:1			
1425	12	17%	5:1	4	75%	3:1	12	25%	1:3
1476	5	60%	1.5:1	2	100%	All	3	33%	1:2
2318	1	0%	None	1	100%	All			
2412	10	20%	1:4	4	100%	All	11	45%	1:1
2413	15	27%	1:3	8	88%	7:1	16	31%	1:2
2414	9	11%	1:8	5	100%	All	8	50%	1:1
2415	5	60%	1.5:1	3	100%	All	5	40%	1:1.5
2420	3	33%	1:2	3	67%	2:1	2	50%	1:1
2254	1	0%	None						
Total	198	57%	1:1	97	74%	3:1	210	64%	2:1
Prog.									
Total	433	66%	2:1	183	74%	3:1	497	71%	2:1

How up-to-date is the equipment used by the program? The computers in the computer classrooms are on the college list and are replaced according to schedule.

The graphing calculators that the Department has are various models with differing functions. Some are fairly old models, but the department maintains them and uses them for as long as possible. The variety of models presents some problems for use.

The lack of sufficient resources is the most immediate problem. The Department uses everything it has, even if outdated, because it is so lacking in equipment.

Identify possibilities for improving the efficiency of the program's use of resources.

Identifying classrooms as mathematics rooms and then properly equipping them with the needed technological resources would minimize the cost and need for technological resources, and would be the most effective way to use the resources.

[g] Comparison of program performance, price, and enrollment with that of alternate local suppliers

How is the program competitive with similar programs offered by other institutions or schools in the service area in terms of performance, cost to students, and enrollments?

Since ACC is the only community college in the Austin area a comparison with local suppliers is highly in our favor. These suppliers are The University of Texas, Huston Tillotson College, Concordia University, and St Edwards University in Austin along with Texas State University in San Marcos and Southwestern University in Georgetown.

For the student the benefits include:

1. The ACC Math Department offers courses not offered at the universities and the four-year colleges as well as a wide range of those that are.
2. The ACC Math Department offers courses at a wide range of locations as opposed to only one per school at the other schools.
3. In some cases the ACC Math instructors are the same people that teach at the other schools and the other ACC instructors are also equally as well qualified.
4. ACC is noticeably cheaper. In fact the ACC out of district charge is less than half of the least expensive of the other schools in the area. This, of course, means that the in district cost is a fraction of the costs of the other schools in the area.

For the Math Department and ACC the benefits include:

1. A broad range of Math classes that exceeds that of most community colleges. This means that the ACC math faculty members have the chance to teach a variety of classes that teachers at many community colleges do not have.
2. As a result of number 4 above the enrollment in ACC math classes is very high. They aid not only the pre-college enrollment but the upper level enrollment as well. Since the state funds the school by enrollment this means that ACC benefits financially as well.
3. The variety of the program, the fact that UT accepts all ACC classes with the MATH prefix except one that was not intended for transfer when it was set up, and the fact that ACC students continue to do so well on the AMATYC exams, first in the region and always at least in the top 20% of all schools (usually in the top 20 of approximately 150 schools), cannot help but enhance the reputation of ACC in the academic world.

[h] Direct and indirect program-related revenues and costs to the College

Identify the major sources of revenue for the program, including grants, partnerships, etc.

Tuition and state-reimbursement are the major sources of revenue. The Department has also received some funds from NSF grants. The Department was a secondary institution to an NSF grant through Texas State University (then Southwest State University) for promoting middle school teacher certification programs. The Department currently is a partner with the ACC Science Departments and has received a grant to establish a Mathematics/Science Teacher Certification Program.

Compare program costs to those of other ACC programs.

Data used in this section is for FY 2002.
The Mathematics program is the largest program in the college. In FY 2002, the mathematics program was the largest source of state funding and the

largest source of tuition revenue for the college, bringing in direct revenue of \$8,711,055. Second was history with direct revenue of \$4,798,713.

Mathematics had the largest enrollment of any program in the college, serving 26,040 students (followed by English with 16,326). Mathematics also has the most sections offered 1,148. English is second with 645.

The Mathematics program has a marginal surplus of \$4,062,839, the largest marginal surplus of any program in the college. Second was history with a marginal surplus of \$3,001,998.

The major costs of the mathematics program are faculty salaries and basic supplies.

Mathematics does not have the highest percentage of marginal surplus. Religion is the department with the highest marginal surplus of 96%. The percentage for mathematics is 46.6%. Part of the reason that the marginal surplus percentage is lower in mathematics is the lower enrollment limits in developmental courses. Basic Math Skills has an enrollment limit of 18 students per section. Elementary Algebra has a limit of 25 students per section. The number of sections of developmental mathematics is more than half the offerings of the department. The other developmental programs in the college, Developmental Writing and Developmental Reading both run at negative marginal surplus. Developmental Writing ran a deficit of \$32,083 and Developmental Reading ran a deficit of \$443,127.

Compare the program's actual expenditures to the approved program budget for the previous two years.

Mathematics program has remained within its budget for the last two years on all entries except duplication.

TRANSFER or WORKFORCE AREA-SPECIFIC INFORMATION

Only Workforce Programs complete the items below.

Report/status from latest external accrediting agency visit

█

When was the most recent program revision?

█

Number of declared majors intending to complete a program who complete degree/certificate requirements within 6 years

█

Average number of semesters it takes for students to gain degree/credential.

█

Number of graduates within the last three years

█

Demographics of graduates

█

Percent of graduates who are employed within one year of graduation.

█

What evidence exists that program completers (or near completers) are successful on the job? What, if available, are their beginning salaries?

█

Percent of employers indicating satisfaction with graduates.

█

Discuss the most recent results of Focus Group or internal survey of employers.

█

Number of employers indicating need for more graduates

█

Provide evidence of SCANS competency integration into course syllabi and programs.

█

How often does the program's advisory committee meet to discuss curriculum issues?

█

When and where are advisory committee minutes maintained and posted?

█

Evidence of recent review of curriculum by external advisory committee.

█

Advisory committee validation of entry level skills

█

Only Transfer Programs complete the items below.

Number and percent of graduates who transfer within one year of graduation.

Year 00-01 7 graduates

Year 99-00 6 graduates

While these number seem low, the 7 2000-01 graduates is the highest number in the Mathematics/Science Dean area. Second was Engineering with 4 graduates. Mathematics is basically a service department, and most students in mathematics transfer without completing the Associate degree.

Number of articulation agreements with universities and colleges

The department has 16 articulation agreements and is working on additional ones for the new teacher certification program. The majority of students transfer to UT, Texas A & M, and Texas State at San Marcos.

Number of courses that transfer

0 developmental mathematics courses transfer to four-year institutions
16 of 17 mathematics courses transfer. The one course that does not transfer is a workforce specific course.

Number of student complaints about problems with course transfer

0 complaints

Discuss the results of the most recent Survey/focus group of transfer institutions. Students from the mathematics department do very well in transfer to other institutions. This is also true of students in areas that are served by mathematics, such as sciences and business. Most students actually transfer prior to graduating from ACC.

In each year there were 7 ACC foundation courses and there were 12, 14 and 15 TAMU target courses for '95, '96 & '97 respectively.

Discuss data from transfer institutions if available.

ACC students compare favorably with all transfer students in terms of GPA earned in the first semester after transfer to UT, TAMU, and Texas State. The highest GPA for ACC students is for those transferring to UT, which is also true for all transfer students.

Data from UT indicate, on average, ACC transfer students do well in their first semester. In 1996 ACC students earned fall semester overall average GPA of 2.78 compared with 2.75 in 1994 and compared with 2.80 and 2.75 in '96 and '94 respectively for all transfer students (all colleges). However when looking at the Math discipline, the ACC transfer student GPA was 2.13 (same in '96 & '94). This compares with 2.26 and 2.23 in '96 & '94 for students transferring from all colleges.

TAMU uses a method called Foundation Course Tracking in order to provide analysis of the performance of students who transfer there from ACC. Rather than an overall GPA, TAMU links a "foundation" course taken at the institution from which students transfer with its "target course taken at TAMU, the calculates an average GPA for the course for ACC transfer students, all transfer students, and all "native" students (those who took both the foundation and target courses at TAMU).

Data was available for 1995, 1996, & 1997. Having identified that set of TAMU target courses for which an ACC Math course was the foundation course, a

weighted average GPA for the TAMU target course has been calculated for ACC transfer students, all transfer students and TAMU "native" students.

In each year there were 7 ACC foundation courses and there were 12, 14 and 15 TAMU target courses for '95, '96 & '97 respectively.

Year	ACC Transfer Students population	ACC Transfer Students GPA	All Transfer Students population	All Transfer Students GPA	TAMU Native Students population	TAMU Native Students GPA
1995	98	2.37	3,792	2.22	13,117	2.50
1996	127	2.38	5,333	2.25	17,575	2.48
1997	93	2.34	5,489	2.28	18,134	2.52

In 1997, of the 7 ACC Math foundation courses, four had populations greater than 10, and thus might be statistically significant for a breakdown by ACC math course.

ACC Math Course	population	Ave. GPA
Math for Bus/Eco	18	2.17
College Algebra	15	1.74
Bus. Calculus I	38	2.67
Calculus I	11	1.99

Texas State (Data not available for Math)

First Fall Semester	ACC Ave. GPA	GPA for all transfer students
1997	2.50	2.45
1996	2.51	2.46
1995	2.52	2.43
1994	2.46	2.39
1993	2.54	2.44
1992	2.52	2.45
1991	2.36	2.32

Number of students transferring successfully.

The department does not have any data that is specific to the mathematics program.

CONCLUSIONS

Based on the information collected and analyzed during the program review process, what are the major conclusions of this review of the program? Summarize them here and complete the *Program Status* form.

The Mathematics program is the largest and most "profitable" program in the college. The program is mainly a service area which serves every student in the academic programs and many students in the workforce programs.

The Mathematics program is a strong program. The program has a strong faculty and strong course offerings. The strength is illustrated by the transferability of courses, the success of students who transfer, and the performance of our students in the AMATYC Math Contest.

The Department is extremely large, more than twice the size of any other department. The Department needs additional full-time faculty. Without additional full-time faculty the department will become even more difficult to manage. The Department needs to continue to work on communication both within itself and between it and the college.

In order to maintain the strength of the program, the Department needs to continue to constantly work on curriculum to be sure that it is prepared to appropriately serve every student from those with the weakest mathematical backgrounds to those with the strongest. The program needs to work with Student Services and IT to improve non-mastery and withdrawal rates in courses.

The lack of technological resources to support instruction in mathematics courses is of great concern. Without additional technological resources, the quality and currency of instruction is threatened. The Department must work to obtain additional resources, media presentation equipment, graphing calculator presentation equipment, and computer classrooms.

The Mathematics Department needs to continue to participate in all aspects of the college. The Department needs to work within the college structure to obtain appropriate funding and resources for the department, to obtain sufficient sections to properly serve students, and to assure that the complexities of the department are understood.

PROGRAM VISION STATEMENT

State the program's vision or preferred future for the next five years. The vision statement should provide direction to the program as it makes improvements to enhance its effectiveness and efficiency.

Mathematical skills are a vital aspect to success in careers and to the survival and success of our society. As more technology is available and used, mathematical skills become ever more important. The Mathematics program needs to prepare students for an evolving technological world to help them to be successful as individuals and contributing members of society. The Mathematics program must continually analyze the quantitative and critical thinking skills

needed by students and revise the curriculum as needed. The Mathematics program must have and use appropriate technology to develop the skills and prepare students for working in a technologically driven society.

The Mathematics program must be prepared for an increase in students attending college. The Closing the Gaps initiative and the evolving global economy will require the mathematics program to be prepared to serve a student population with very diverse mathematical backgrounds. The Mathematics program needs to be prepared to assess the current mathematical knowledge of students, have appropriate courses to serve them, and have a sequence to move the student through the development of quantitative and critical thinking skills to help them succeed in every program of study.

RECOMMENDATIONS

What does the self-study team recommend for improving or maintaining the quality of the program? Summarize them here and complete the *Quality Improvement Plan* form.

1. The Mathematics program should hire two new full-time faculty members each year for the next three years.

2. The Mathematics program needs to acquire the technology necessary to respond to the changing educational curriculum.

Mathematics classrooms need to be equipped with TVs and TI-presenters, and faculty need to have overhead capable graphing calculators. Every campus needs to have

computers available in classrooms with the software necessary to support instruction. Every campus needs to have classrooms with media presentation equipment to

enhance and support instruction.

3. Mathematics faculty need to be trained in the appropriate use of technology in their classes.

4. The Mathematics program needs to address issues that lead to high non-mastery and withdrawal rates in mathematics courses. One major cause of this is that students enroll in courses that are not at the appropriate level for their background. The Mathematics program needs to work with Student Services and Instructional Technology to correct this. The program also needs to identify possible curriculum improvements based on the non-mastery rate of continuing students within a sequence.

5. The number of developmental mathematics sections and the number of first level credit mathematics courses needs to increase to meet the demand and to allow for increased enrollment with Closing the Gaps.

ADDITIONAL COMMENTS

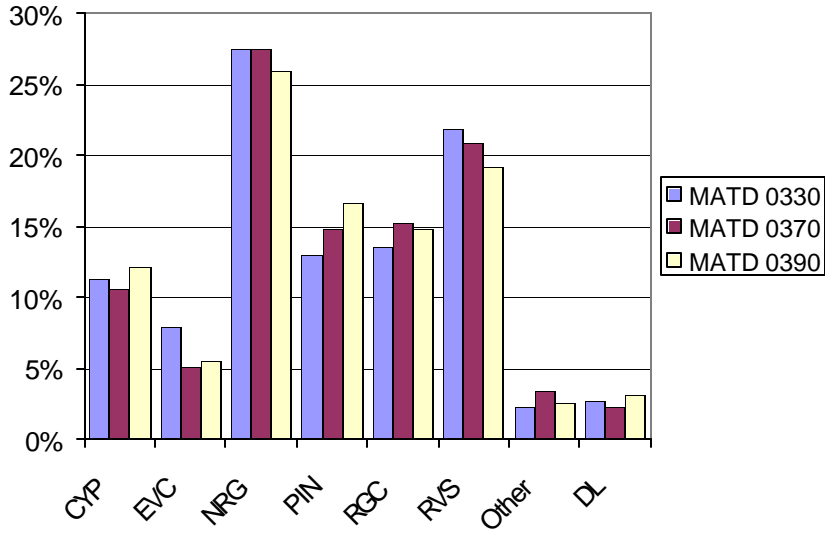
APPENDIX

List all documents that you used in your report:

Preliminary Enrollment Reports
ACC Fact Book
Mathematics Departmental Schedules
Budget Planning Data
Mathematics Program Review - Faculty Survey
ACC Course Schedules
Mathematics SWOT Meeting Report
Unit Level Institutional Effectiveness Measures
THECB Automated Student and Adult Learner Follow-up system
ACC FY 2002 Program Revenues vs Expenses
ACC Effectiveness Update: Academic Programs Transfer Effectiveness Measures
ACC Combined Sections, Enrollments, Credit and Contact Hours by Department and Faculty Type for 5-Year Period FY1998-FY2002
ACC Uncombined Sections, Enrollments, Credit and Contact Hours by Term and Location Fall 1999-Spring 2003
ACC Number of Sections by Term, Time of Day and Course Fall 1999- Spring 2003
ACC Reasons for Withdrawal by Term
ACC Awards/Degrees Conferred July 00 through June 2002
ACC Graduate Follow-Up Survey Results by Program
ACC Analysis of Non-transfer, Withdrawal and Non-Mastery Rates Fall 2001 Courses
ACC Analysis of Non-transfer, Withdrawal and Non-Mastery Rates Fall 2001 Distance Learning Only
ACC Analysis of Non-transfer, Withdrawal and Non-Mastery Rates Fall 2001 Developmental Courses
ACC Developmental Education Plan
ACC Effectiveness Update: Developmental Education Plan
THECB 2002 Annual Data Profile: Graduates by Ethnicity 2000-01
THECB 2002 Annual Data Profile: Graduates by Gender 2000-01
THECB 2002 Annual Data Profile: Cumulative Graduates 1998-2001

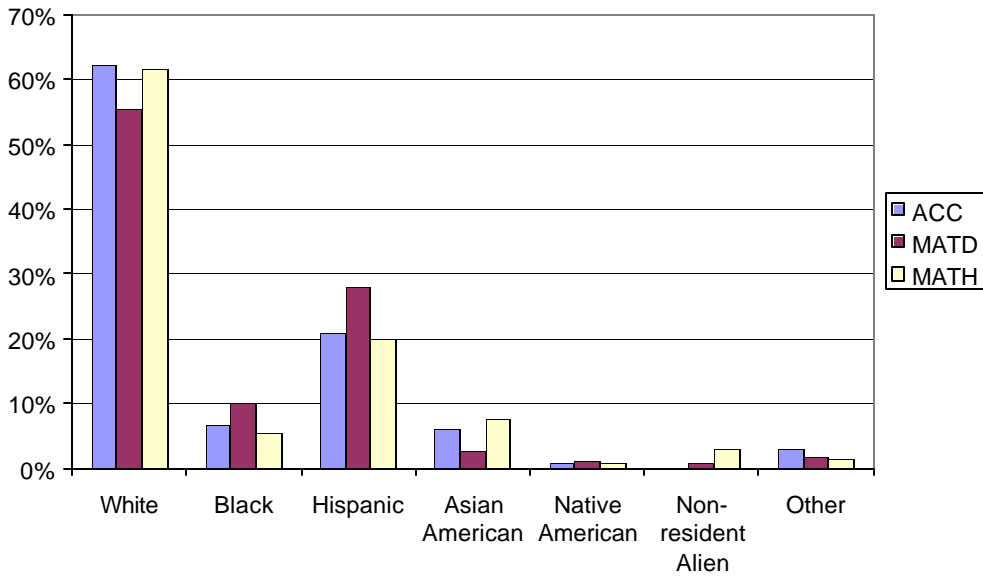
When you have completed this report, send it via e-mail to the Coordinator for Institutional Assessment (rwall@austincc.edu) as an attachment.

Graph C1



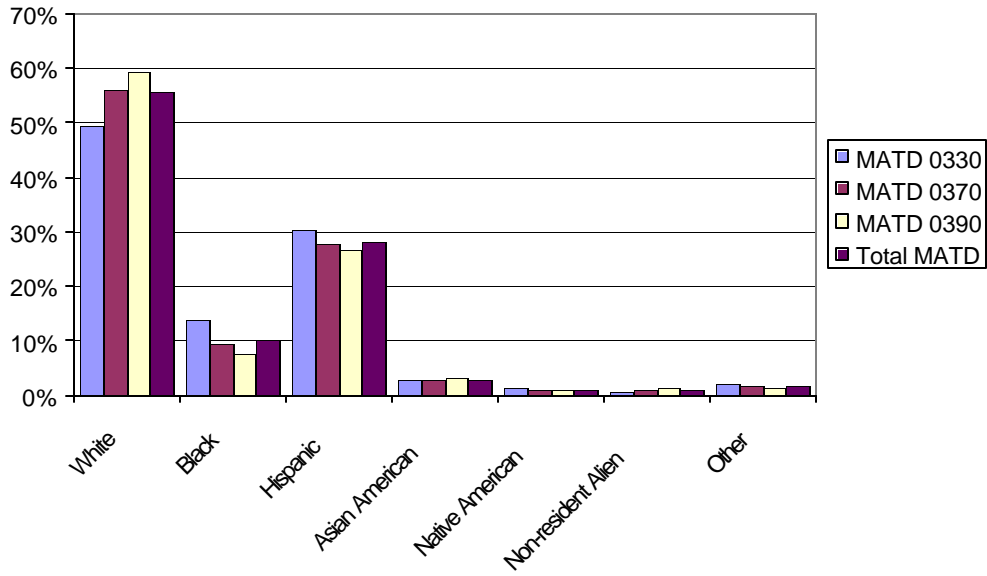
Graph C2

Ethnicity of MATH and MATD Compared to ACC Average



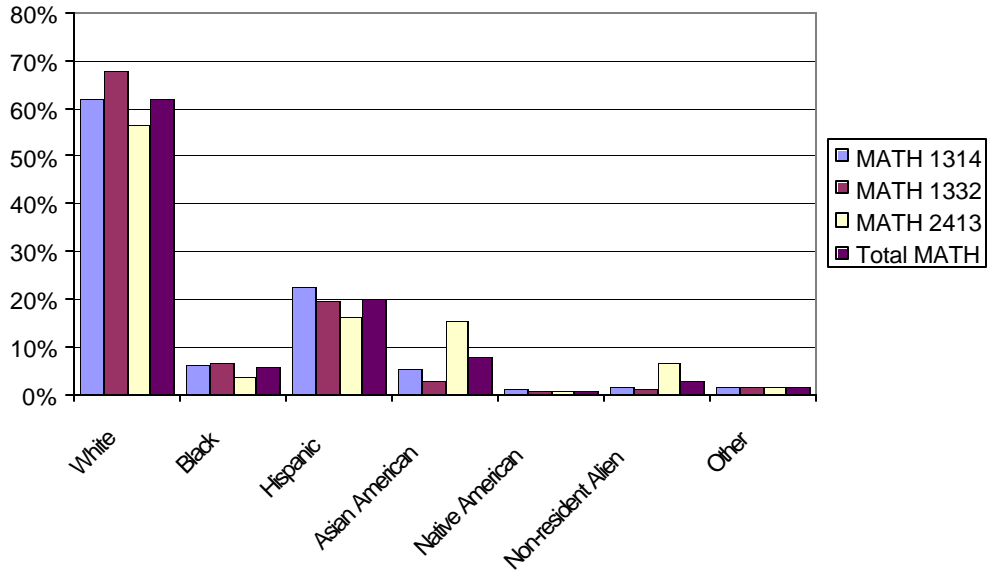
Graph C3

Enrollment by Ethnicity - Developmental Mathematics



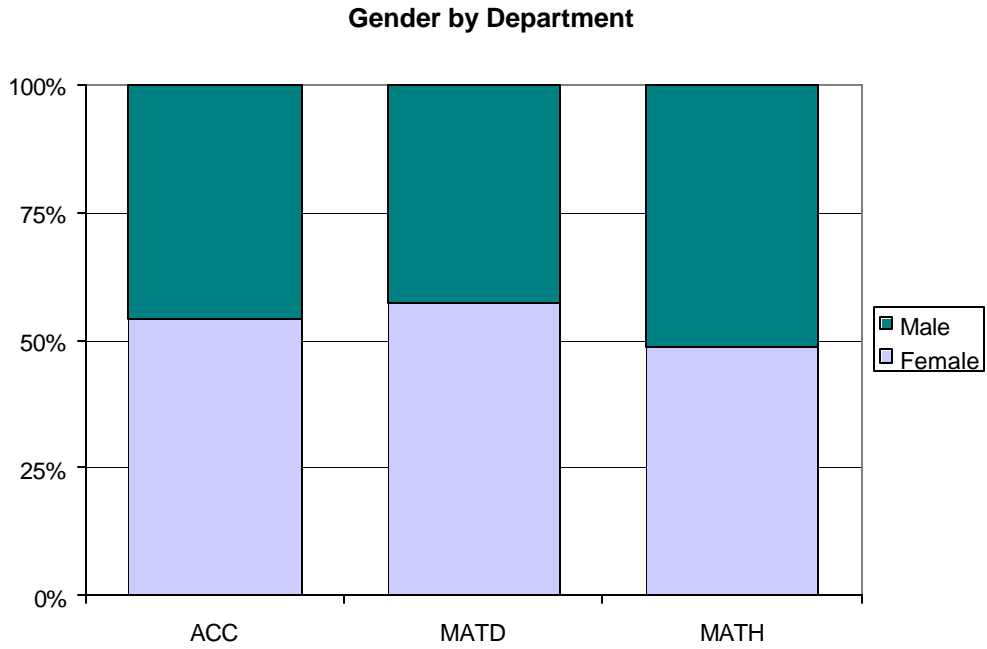
Graph C4

Enrollment by Ethnicity - Mathematics

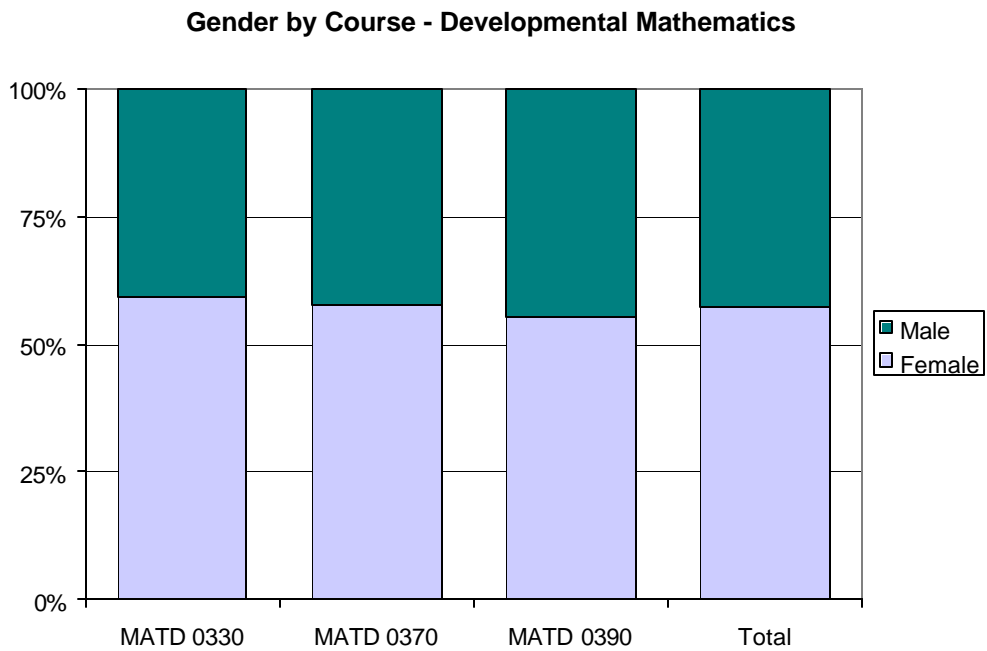


Graph C5

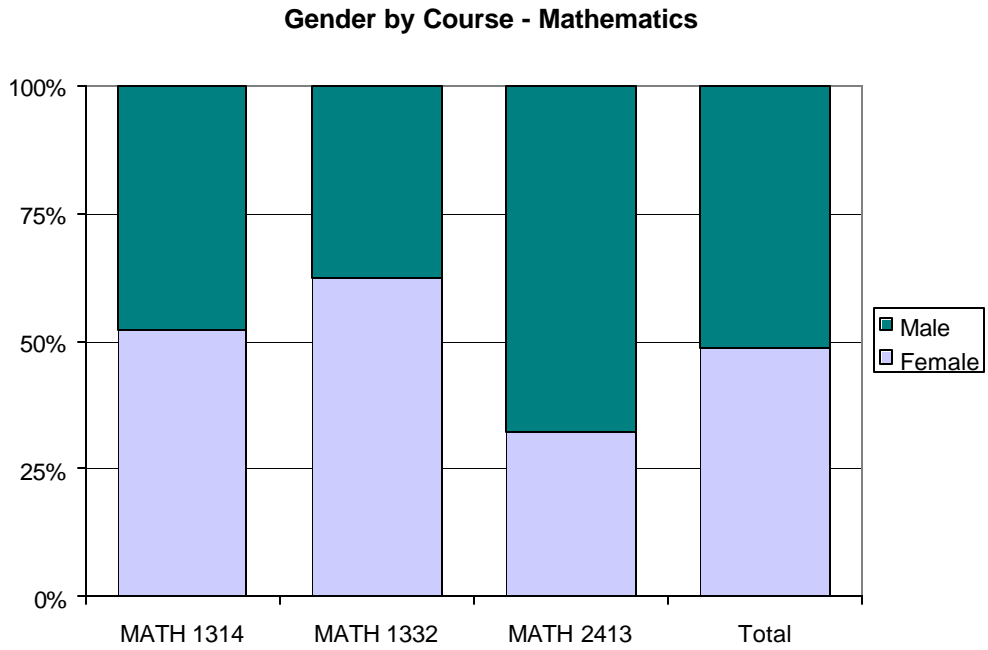
Gender



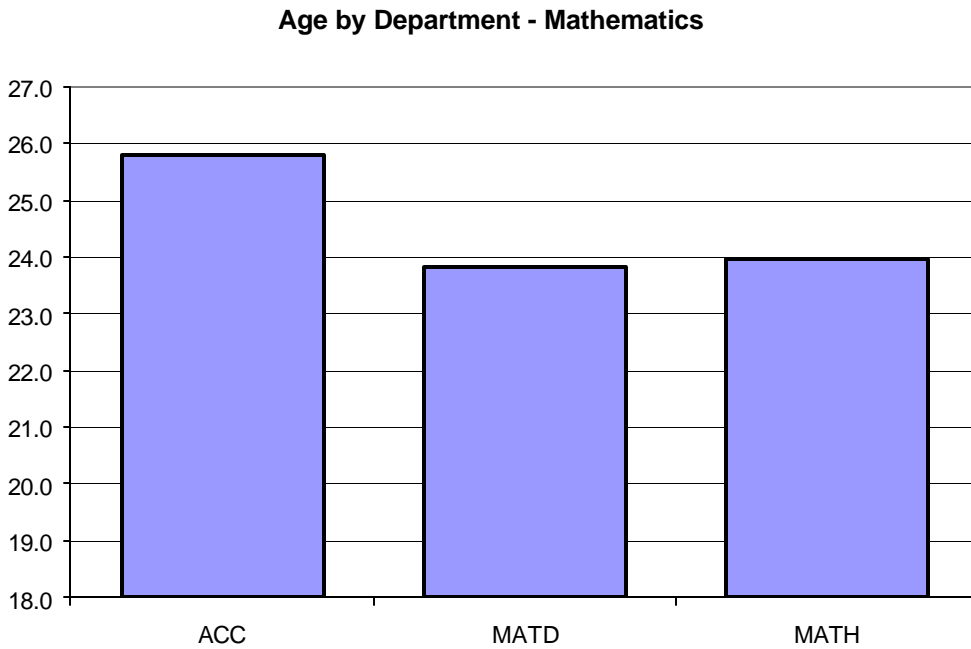
Graph C6



Graph C7

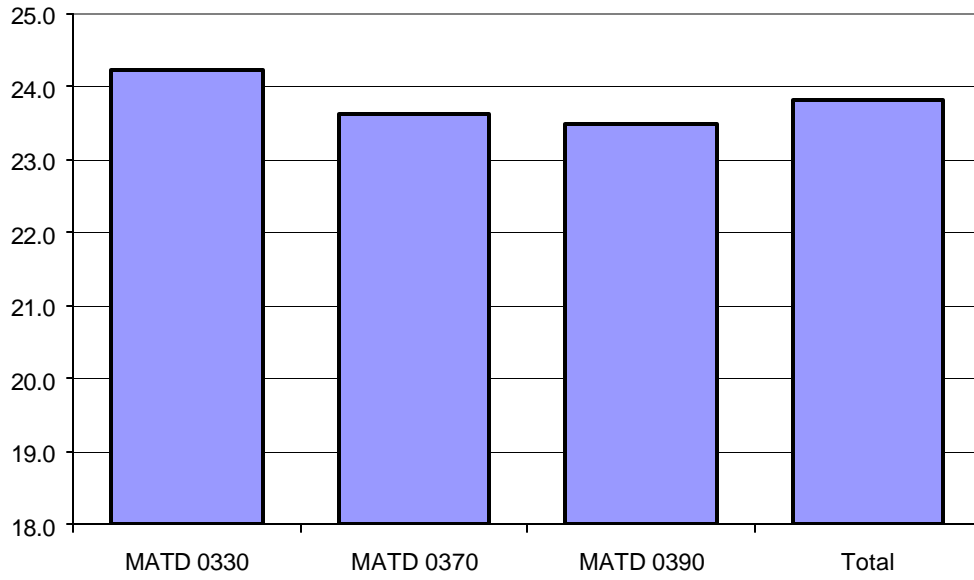


Graph C8



Graph C9

Age by Course - Developmental Mathematics



Number of sections of courses offered on each campus in Fall 99

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	27	12	75	36	42	55	247
MATH	20	7	63	28	57	41	216
TOTAL	47	19	138	64	99	96	463
% of total sections	10.15%	4.10%	29.81%	13.82%	21.38%	20.73%	

Number of sections of courses offered on each campus in Fall 00

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	28	11	69	36	38	52	245
MATH	21	6	60	27	54	39	196
TOTAL	49	17	129	63	92	91	441
% of total sections	11.11%	3.85%	29.25%	14.29%	20.86%	20.63%	

Number of sections of courses offered on each campus in Fall 02

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	31	17	73	38	41	60	272
MATH	23	3	63	27	48	43	217
TOTAL	54	20	136	65	89	103	489
% of total sections	11.04%	4.08%	27.81%	13.29%	18.20%	21.06%	

Number of sections of courses offered on each campus in Fall 03

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	34	18	75	39	41	62	286
MATH	22	4	61	27	45	43	210
TOTAL	56	22	136	66	86	105	496
% of total sections	11.29%	4.43%	27.42%	13.31%	17.34%	21.17%	

Number of Full-time Faculty at the Campus in Fall 99

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
# FT fac	3	1	10	2	8	8	32
% of FT faculty at campus	9.4%	3.1%	31.3%	6.3%	25.0%	25.0%	

Number of Full-time Faculty at the Campus for Fall 00

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
# FT fac	3	1	11	4	8	7	34
% of FT faculty at campus	8.8%	2.9%	32.3%	11.8%	23.5%	20.6%	

Number of Full-time Faculty at the Campus in Fall 02

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
# FT fac	4	2	9	5	9	8	38
% of FT faculty at campus	10.5%	5.3%	23.7%	13.2%	23.7%	21.1%	

Number of Full-time Faculty at the Campus in Fall 03

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
# FT fac	4	2	10	5	8	8	37
% of FT faculty at campus	10.8%	5.4%	27.0%	13.5%	21.6%	21.6%	

Number of Sections of Courses offered in Fall 99 that were actually staffed by full-time faculty

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	2	3	14	1	11	15	46
MATH	10	1	27	5	17	16	76
TOTAL	12	4	41	6	28	31	122
% of campus sections taught by FT faculty	25.53%	21.05%	29.71%	9.38%	28.28%	32.29%	

% of all MATD & MATH sections staffed by full-time faculty 26.4%

% of MATD sections staffed by full-time faculty 18.6%

% of MATH sections staffed by full-time faculty 35.2%

Number of Sections of Courses offered in Fall 00 that were actually staffed by full-time faculty

	CYP	EVC	NRG	PIN	RGC	RVS	TOTAL
MATD	5	2	13	6	10	12	48
MATH	10	1	23	6	13	19	72
TOTAL	15	3	36	12	23	31	120
% of campus sections taught by FT faculty	30.6%	17.6%	27.9%	19.1%	25.0%	34.1%	

% of all MATD and MATH sections offered taught by full-time faculty 27.21%

% of all MATD sections offered taught by full-time faculty 20.51%

% of all MATH sections offered taught by full-time faculty 34.78%

Number of Sections of Courses offered in Fall 02 that were actually staffed by full-time faculty

	CYP	EVC	NRG	PIN	RGC	RVS	DL	TOTAL
MATD	6	4	16	9	9	16	7	67
MATH	13	3	18	7	22	20	2	85
TOTAL	19	7	34	16	31	36	9	152
% of campus sections taught by FT faculty	35.2%	35%	25%	24.6%	34.8%	35.0%	90%	

% of all MATD and MATH sections offered taught by full-time faculty 31.1%

% of all MATD sections offered taught by full-time faculty 24.6%%

% of all MATH sections offered taught by full-time faculty 39.2%%

Number of Sections of Courses offered in Fall 03 that were actually staffed by full-time faculty

	CYP	EVC	NRG	PIN	RGC	RVS	DL	TOTAL
MATD	5	3	12	10	11	17	12	70
MATH	11	4	19	6	15	19	2	76
TOTAL	16	7	31	16	26	36	14	146
% of campus sections taught by FT faculty	28.5%	31.8%	22.8%	24.2%	30.2%	34.2%	93%	

% of all MATD and MATH sections offered taught by full-time faculty 29.4%

% of all MATD sections offered taught by full-time faculty 24.5%

% of all MATH sections offered taught by full-time faculty 36.2%

Quality Improvement Plan Form for **Mathematics** Program

To be useful, a plan must be based on distinct, measurable tasks or actions that strengthen the program. An action plan is not philosophical or abstract. It can and should include some “what ifs.” “If this equipment is purchased,” “If space is added,” or “If schedules are changed,” are examples.

The template below is intended to assist you in thinking and planning long-term. The College knows that factors can and do change so that some of these projected tasks may not occur—especially those projected for the third year. Furthermore, we know that this plan will need to be revised. Therefore, in one year, OIE will be asking you to update both your progress towards these tasks and to review/revise your tasks for the second and third year of the plan.

Note on Requests for Funds : Consider changes that require **one-time** costs (equipment, renovation, etc.) and changes that require **recurring** costs (typically new positions). *All requests for funding should indicate how they will improve learning and meet targeted objectives.*

2004-05				
Goal: Increase the number of developmental mathematics sections so there are no overloads and no turned away students.				
Estimated completion date:Spring 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Increase number of sections of developmental mathematics by 10 for Spring 2005 and by 10 for Fall 05.	: No developmental mathematics sections will be overloaded in Spring 2005.	\$30,000 for Spring 2005 Faculty salary about \$3000/section which should be more than covered by tuition and state reimbursement.	If more sections are not available, then students will be turned away from the college because most students in developmental mathematics can not get into college credit classes if they do not get their developmental course. Impacts the Closing the Gaps initiative.	Mary Hensley to allow sections, Mathematics Dept. Chair to schedule courses/times/days

Goal: Increase the number of full-time mathematics faculty, decrease the dependence on adjunct faculty				
Estimated completion date: August 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Hire two full-time mathematics faculty	Size of full-time mathematics faculty increases by two. Percentage of sections taught by adjunct faculty decreases.	\$106,930 \$51,115 salary and benefits, \$2350 office furniture and resources per faculty member	If the size of the full-time mathematics faculty does not increase, then the department will become more unwieldy, maintaining standards in the department will become more difficult, and the quality of our programs will be jeopardized.	EVP and AVP for Academic Programs for allotting positions, Mathematics Dept. for actual hiring recommendations

Goal: Decrease the non-mastery and withdrawal rates in developmental mathematics and mathematics courses				
Estimated completion date: August 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Work with Advisors and IT to place students into appropriate courses and keep students from registering for inappropriate courses. Revise curriculum sequences to assure preparedness for next course.	Non-mastery and withdrawal rates in developmental mathematics and mathematics courses will decrease	None	NA	Mathematics Dept. for initiating communication

Goal: Equip classrooms used for mathematics courses with have the necessary media presentation equipment				
Overall equip 15 rooms, 5 each in 04-05, 05-06, 06-07.				
Estimated completion date: August 2005 to equip 5 rooms				
(Overall completion date: August 2007 to equip 15 rooms: 3 each at NRG, RGC, RVS, 2 each at CYP, PIN, EVC)				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible

	Measure of Success	Justification	Funded	
Equip 5 classrooms with mounted media presentation equipment, computer, TV, TI presenter, locking cabinet	30% of the classrooms used for developmental math and math classes will have the appropriate technological resources. 30% of the faculty teaching will have the appropriate technology for their courses 30% of the students will have appropriate technology to use during their mathematics	\$16,725 Total: \$3345/classroom Mounted Projector 1 @ 1200 Computer 1 @ 1100 25" TV 1 @ 245 TI-presenter 1 @ 300 Locking cabinet 1 @ 500	If necessary media equipment is not provided then quality and currency of curriculum and instruction are impacted.	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use

Goal: Mathematics faculty members will have an overhead capable graphing calculator for appropriate courses.

Estimated completion date: October 2004

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Purchase 50 TI-84 graphing calculators for faculty use (50 in 2004-2005, 50 in 2005-06)	50% of the math faculty will have the appropriate technology for their courses	\$5500 TI-84 graphing calculator 50 @ \$110	If the graphing calculators are not available then faculty, the quality and the currency of curriculum and instruction is impacted.	Ben Ferrell and budget authorities for providing funds, Mathematics Department for purchase and use

Goal: Classrooms used for mathematics courses will have the necessary technology: TV, and TI presenter.

Estimated completion date: Equip 20 rooms during 2004-2005
(Overall equip all rooms (about 50) by August 2007)

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Equip classroom with TV and TI-presenter	40% of the classrooms used for developmental math and math classes will have the appropriate technological	\$10,900 Total \$545/classroom 25" TV 50 @ 245	If the TV and TI-presenter are not available then faculty cannot demonstrate graphing calculator for students.	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics

	resources	TI-presenter 50 @ 300	Quality and currency of curriculum are impacted.	Department for purchase and use
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Goal: Provide computer classroom for mathematics classes at Rio Grande campus

Estimated completion date: August 2005

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Convert classroom at RGC to computer classroom for use with mathematics courses	100% of the mathematics courses at RGC will be scheduled in a room with the appropriate computer technology to support the course	: \$52,915 Classroom space Wiring \$1500 Computers 26 @ 1100 Computer workstations 25 @ 672 Desk hoods 25 @ 30 Chairs 25 @ 112 Headphones 30 @ 20 Printer 1 @ 820 25" TV 1 @ 245 TI-presenter 1 @ 300 Locking Cabinet 1 @ 500	If the classroom is not funded then classes at RGC will continue to lack the necessary resources for the course.	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use

Goal: Provide classroom sets of 30 TI-84 graphing calculators and case for use by students in classes.

Estimated completion date: August 2005 (Overall completion date: August 2007, 16 sets:)

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide 6 sets (one for each main campus) of 30 TI-84 graphing calculators in a carrying case	30% of the students will have appropriate technology to use during their mathematics classes	\$20,280 (for 6 sets) 30 TI-84 graphing calculators @\$110 1 carrying case @ \$80	If classroom sets of graphing calculators are not available then faculty will not be able to meet current standards and the quality and currency of instruction will be impacted. Students will not have necessary equipment for courses.	Ben Ferrell and budget authorities for providing funds, Mathematics Department for purchase and use

Goal: All ACC faculty will have access to classrooms sets of laptop computers to use in classes				
Estimated completion date: August 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide each campus with a classroom set of 36 laptop computers on a cart that all ACC faculty can check out from Media for use in a class	Every main campus will have a classroom set of 36 laptops on a cart in the Media department.	\$303,000 Laptop computers 216 @ 1500 Cart 6 @ 500	If needed technology is not available then the quality and currency of the instruction suffers.	Media

Goal: Provide appropriate training for faculty in use of technology at the minimum cost				
Estimated completion date: August 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide the Mathematics budget with monetary resources necessary to send lead faculty to technology training conferences and workshops.	Lead faculty will attend workshops and technology training sessions. Lead faculty will offer professional development workshops at ACC to train other faculty.	\$5000 travel funds, workshop and conference fees	If funds are not available to support sending lead faculty to technology workshops and conferences then the quality and currency of the curriculum and instruction will be impacted.	Ben Ferrell and funding authorities to provide funds, Mathematics Dept. to select lead faculty and conferences, Lead faculty to attend workshops and offer professional development workshops at ACC

Goal: Provide needed funds to support technical personnel to maintain mathematics computer classrooms and TI-presenters				
Estimated completion date: August 2004				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Increase mathematics department, hourly funds, hire part-time Computer Technician	100% of the mathematics computer classrooms will be 100% operational for classes.	\$10,000 increase in Mathematics budget hourly funds	If sufficient hourly funds are not available, then the computers and software needed for classes are not available when needed. Computer-mediated classes cannot function and instruction is impacted.	Ben Ferrell and budget authorities to provide funds, Mathematics Dept. to hire technician

2005-06**Goal:** No developmental mathematics sections are overloaded and no turned away students.**Estimated completion date:** Fall 2005

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Increased sections of developmental mathematics are offered for Fall 2005.	No developmental mathematics sections will be overloaded in Fall 2005.	\$30,000 Faculty salary about \$3000/section which should be more than covered by tuition and state reimbursement.	If more sections are not available, then students will be turned away from the college because most students in developmental mathematics can not get into college credit classes if they do not get their developmental course. Impacts the Closing the Gaps initiative.	Mary Hensley to allow sections, Mathematics Dept. Chair to schedule courses/times/days

Goal: Increase the number of full-time mathematics faculty, decrease the dependence on adjunct faculty**Estimated completion date:** August 2006

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Hire two full-time mathematics faculty	Size of full-time mathematics faculty increases by two. Percentage of sections taught by adjunct faculty decreases.	\$106,930 \$51,115 salary and benefits, \$2350 office furniture and resources per faculty member	If the size of the full-time mathematics faculty does not increase, then the department will become more unwieldy, maintaining standards in the department will become more difficult, and the quality of our programs will be jeopardized.	EVP and AVP for Academic Programs for allotting positions, Mathematics Dept. for actual hiring recommendations

Goal: Equip classrooms used for mathematics courses will have the necessary media presentation equipment Overall equip 15 rooms, 5 each in 04-05, 05-06, 06-07.				
Estimated completion date: August 2006 equip 5 rooms (Overall completion date: August 2007 to equip 15 rooms: 3 each at NRG, RGC, RVS, 2 each at CYP, PIN, EVC)				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Equip 5 classrooms with mounted media presentation equipment, computer, TV, TI presenter, locking cabinet	70% of the classrooms used for developmental math and math classes will have the appropriate technological resources. 70% of the faculty teaching will have the appropriate technology for their courses 70% of the students will have appropriate technology to use during their mathematics	16,725 Total: \$3345/classroom Mounted Projector 1 @ 1200 Computer 1 @ 1100 25" TV 1 @ 245 TI-presenter 1 @ 30 Locking cabinet 1 @ 500	If necessary media equipment is not provided then quality and currency of curriculum and instruction are impacted	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use

Goal: Mathematics faculty members will have an overhead capable graphing calculator for appropriate courses.				
Estimated completion date: October 2005				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Purchase 50 TI-84 graphing calculators for faculty use	100% of the math faculty will have the appropriate technology for their courses	\$5500 TI-84 graphing calculator 50 @ \$110	If the graphing calculators are not available then faculty, the quality and the currency of curriculum and instruction is impacted.	Ben Ferrell and budget authorities for providing funds, Mathematics Department for purchase and use

Goal: Classrooms used for mathematics courses will have the necessary technology: TV, and TI presenter.				
Estimated completion date: Equip 20 rooms during 2005-2006 (Overall equip all rooms (about 50) by August 2007)				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Equip classroom with TV and	80% of the classrooms used	\$10,900	If the TV and TI-presenter are	Ben Ferrell and budget

TI-presenter	for developmental math and math classes will have the appropriate technological resources	Total \$545/classroom 25" TV 50 @ 245 TI-presenter 50 @ 300	not available then faculty cannot demonstrate graphing calculator for students. Quality and currency of curriculum are impacted.	authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use
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Goal: Provide classroom sets of 30 TI-84 graphing calculators and case for use by students in classes.

Estimated completion date: August 2006
(Overall completion date: August 2007, 16 sets)

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide 6 sets (one for each main campus) of 30 TI-84 graphing calculators in a carrying case	80% of the students will have appropriate technology to use during their mathematics classes	\$20,280 (for 6 sets) 30 TI-84 graphing calculators @ \$110 1 carrying case @ \$80	If classroom sets of graphing calculators are not available then faculty will not be able to meet current standards and the quality and currency of instruction will be impacted. Students will not have necessary equipment for courses.	Ben Ferrell and budget authorities for providing funds, Mathematics Department for purchase and use

Goal: Provide appropriate training to faculty in use of technology at the minimum cost

Estimated completion date: August 2006

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide monetary resources necessary to send lead faculty to technology training conferences and workshops.	Lead faculty will attend workshops and technology training sessions. Lead faculty will offer professional development workshops at ACC to train other faculty.	\$5000 travel funds, workshop and conference fees	If funds are not available to support sending lead faculty to technology workshops and conferences then the curriculum will remain become stagnant and less useful to students.	Ben Ferrell and funding authorities to provide funds, Mathematics Dept. to select lead faculty and conferences, Lead faculty to attend workshops and offer professional development workshops at ACC

Goal: Mathematics Departmental funds to purchase software to support classroom instruction

Estimated completion date: September 2005

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Increase Mathematics Department budget funds to provide monetary resources necessary to purchase software to support classroom instruction	Mathematics department will order software to support classroom instruction. Mathematics Department will offer professional development opportunities for faculty on using software in classes	\$5000	If sufficient funds are not available for software to support instruction, then currency of curriculum lapses.	Ben Ferrell and budget authorities for providing funds, Mathematics Dept. for purchase

2006-07

Goal: Increase the number of full-time mathematics faculty, decrease the dependence on adjunct faculty

Estimated completion date: August 2007

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Hire two full-time mathematics faculty	Size of full-time mathematics faculty increases by two. Percentage of sections taught by adjunct faculty decreases.	\$106,930 \$51,115 salary and benefits, \$2350 office furniture and resources per faculty member	If the size of the full-time mathematics faculty does not increase, then the department will become more unwieldy, maintaining standards in the department will become more difficult, and the quality of our programs will be jeopardized.	EVP and AVP for Academic Programs for allotting positions, Mathematics Dept. for actual hiring recommendations

Goal: Equip classrooms used for mathematics courses will have the necessary media presentation equipment

Overall equip 15 rooms, 5 each in 04-05, 05-06, 06-07.

Estimated completion date: August 2007 equip 5 rooms

(Overall completion date: August 2007 to equip 15 rooms: 3 each at NRG, RGC, RVS, 2 each at CYP, PIN, EVC)

Task or Action	Expected Outcome/	Estimated Cost(s) with	Consequence if Not	Who is Responsible
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	Measure of Success	Justification	Funded	
Equip 5 classrooms with mounted media presentation equipment, computer, TV, TI presenter, locking cabinet	100% of the classrooms used for developmental math and math classes will have the appropriate technological resources. 100% of the faculty teaching will have the appropriate technology for their courses 100% of the students will have appropriate technology to use during their mathematics	\$16,725 Total: \$3345/classroom Mounted Projector 1 @ 1200 Computer 1 @ 1100 25" TV 1 @ 245 TI-presenter 1 @ 300 Locking cabinet 1 @ 500	If necessary media equipment is not provided then quality and currency of curriculum and instruction are impacted	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use

Goal: Classrooms used for mathematics courses will have the necessary technology: TV, and TI presenter.

Estimated completion date: Equip 10 rooms during 2006-2007
(Overall equip all by August 2007)

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Equip classroom with TV and TI-presenter	100% of the classrooms used for developmental math and math classes will have the appropriate technological resources	:\$5,450 Total \$545/classroom 25" TV 50 @ 245 TI-presenter 50 @ 300	If the TV and TI-presenter are not available then faculty cannot demonstrate graphing calculator for students. Quality and currency of curriculum are impacted.	Ben Ferrell and budget authorities for providing funds, Facilities for installation, Mathematics Department for purchase and use

Goal: Provide classroom sets of 30 TI-84 graphing calculators and case for use by students in classes.

Estimated completion date: August 2007
(Overall completion date: August 2007, 16 sets)

Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide 4 sets (one for NRG, RGC, RVS and SMC) of 30 TI-84 graphing calculators in a carrying case	100% of the students will have appropriate technology to use during their mathematics classes	\$13,520 (for 4 sets) 30 TI-84 graphing calculators @ \$110 1 carrying case @ \$80	If classroom sets of graphing calculators are not available then faculty will not be able to meet current standards and the quality and currency of instruction will be impacted.	Ben Ferrell and budget authorities for providing funds, Mathematics Department for purchase and use

			Students will not have necessary equipment for courses.	
Goal: Provide appropriate training to faculty in use of technology at the minimum cost				
Estimated completion date: September 2006				
Task or Action	Expected Outcome/ Measure of Success	Estimated Cost(s) with Justification	Consequence if Not Funded	Who is Responsible
Provide monetary resources necessary to send lead faculty to technology training conferences and workshops.	Lead faculty will attend workshops and technology training sessions. Lead faculty will offer professional development workshops at ACC to train other faculty.	\$5000 travel funds, workshop and conference fees	If funds are not available to support sending lead faculty to technology workshops and conferences then the curriculum will remain become stagnant and less useful to students.	Ben Ferrell and funding authorities to provide funds, Mathematics Dept. to select lead faculty and conferences, Lead faculty to attend workshops and offer professional development workshops at ACC