Part I. Alignment with College

Chapter 0: Unit Alignment
Key Question: How is your unit aligned with the college's goals and values?

1) Core Values
Review the work your unit did on core values in 2003-2004. Does the alignment you described remain accurate? Please update by removing commentary that no longer applies and, where appropriate, adding commentary that reflects changes or additions you have made since last year's Unit Plan.

The Mathematics Division supports learning by creating an environment that respects the needs and potential of each student through fairness, honesty, and openness. We cultivate a respectful, inclusive, and accessible learning environment. We are constantly responding to the challenges of a changing technological community and workplace. We attempt to remove barriers to learning for our students.

1.1 Learning

The Mathematics Division utilizes various modes of instruction, a number of different time blocks, open-entry/exit, variable credit, independent study, multiple tracks, and courses designed to meet a myriad of student needs. The Mathematics Division creates a learning centered environment for staff and faculty by providing opportunities for professional development and sharing time.

1.2 Diversity

The Mathematics Division strives to welcome, value and promote diversity amongst our staff, our students, and our community. Our office staff and instructors work diligently to ensure respectful, inclusive and accessible working and learning environments for our staff and students.

The Mathematics Division supports and encourages our entire faculty and staff to participate in diversity trainings and in multicultural center events.

When hiring, the Mathematics Division has adhered to Lane's affirmative action/equal opportunity guidelines. Postings have listed "working effectively with students from diverse cultural, racial and ethnic backgrounds, as well as students with disabilities or with other special learning disabilities" as one of the core essential functions of a faculty member.

In an effort to be more effective, the Mathematics Division has devised delivery strategies (various modes of instruction: including open-entry/exit, variable credit, and modularized delivery) that address the following diversities:
Students learn at different rates.
Students' abilities vary greatly.
Students learn in different ways.

1.3 Innovation

The Mathematics Division offers students a variety of ways to study in order to adjust to their needs and increase their success: variable credit, open-entry/exit, late-start classes, cooperative learning, video tapes (overnight checkout available), traditional lecture, lecture/lab, independent study, and a new and innovative modularized instruction (Flexible Sequence Algebra).

The Mathematics Division continues to have a culture of pedagogical renewal and innovation. We have in the past initiated and/or participated in such projects as:

- Early learning communities involving mathematics and other core curricula;
- Leaders in the movement to utilize graphing calculators and computers in our courses to enhance the learning environment;
- Math anxiety workshops and classes;
- Placed developmental math courses in the Academic Learning Skills Division to better serve our students;
- Researched and developed a modeling approach for our calculus courses;
- Designed, updated, implemented and maintain a rigorous placement testing system to ensure proper placement and enhancement of student retention;
- Experimenting with computer mediated and on-line (distance learning) courses;
- Faculty developed and maintain mathematics web-site which includes: information about course web-pages, grants in the department, faculty and staff, course descriptions, course syllabi, texts for courses, calculator recommendations by course, and related sites;
- Faculty developed and maintain on-line courses and web-pages;
- Faculty developed and maintain on-line newsletter for all faculty;
- National Science Foundation grant to develop computer simulations of industrial statistical applications;
- Designed, implemented and upkeep a computer test generation system for web-based testing that is used in-house by the Math Resource Center and at remote sites (e.g., Florence, Cottage Grove campuses); and
- FIPSE Grant for intermediate algebra.

In September 2003, Lane Community College was selected to receive a FIPSE grant under the Comprehensive Program of the United States Department of Education. The award is for $398,484 federal dollars to fund a year of planning and two years of implementation, research, and dissemination. The comprehensive program of the Fund for the Improvement of Postsecondary Education encourages projects that are inclusive, action-oriented, innovative, bold-thinking, and responsive to practitioners. The program, called Flexible Sequence Algebra, creates and pilots a new curriculum and teaching approach for developmental algebra. FSA seeks to provide the benefits of flexible pacing, modular instruction, and variable credit classes while maintaining the structure and support of instructor-led classes. In each course section, the material is broken into two-week long modules that are taught sequentially. However, if a student fails a particular module, he or she moves into a "trailing" section, repeats the failed module, and then continues additional modules in the appropriate sequence. Because different sections are overlapping and start with different modules, students can be placed more effectively, and gain course credit for individual modules as they complete them.

The division stays current with educational literature and trends and tracks the current revolution in technology and frequently revises its curriculum accordingly. Technology is incorporated into

curriculum as a tool to enhance and improve the learning environment for our students, not as a "crutch " or substitute to developing concepts.
The division supports and encourages faculty and staff participation in statewide and national conferences to stay current.

1.4 Collaboration and Partnership

The Mathematics Division promotes meaningful participation in a shared governance structure: a modified participatory governance structure. Although decision-making methods vary according to the topic, and a particular decision might be the final responsibility of one person or group, the division follows a philosophy of decision making that includes: input to the decision-making process from affected parties, timely discussion of issues, and the revision of decisions when needed.

Department charter reflects a tradition of shared decision making. Our charter states: "The Mathematics Division supports the philosophy that individuals who take the responsibility to research decisions and who have the responsibility for carrying out decisions should have, when practical, the opportunity to participate in the making of those decisions".

Recognizing the importance and expertise of our part-time faculty, the division invites and encourages these faculty members to participate: in curriculum meetings, on hiring committees, and in in-service activities. An elected part-time instructor represents part-time staff members (with full voting privileges) at division meetings.

The Mathematics Division utilizes the Mathematics Advisory Committee (MAC), which is an advisory committee to help the division anticipate potential problems and discuss possible solutions prior to division meetings.

Other collaborations include:
- Advisory Committee participation (Engineering);
- Campus-wide governance committees; and
- Faculty Council.

The Mathematics Division encourages and expands partnerships with organizations and groups in the community by:
- Serving the mathematics needs of a wide range of students, from students whose math anxiety blocks them from learning basic arithmetic, through students in vocational programs who need highly specific math skills, including students transferring to four year science and engineering programs;
- Working through LCC's College Now program, with local high schools, to offer college-level mathematics courses for college credit in high schools through out the county;
- Working with local high schools to promote math awareness by hosting the annual Math Skills Fair; and
- Faculty members actively involved in Advisory Committees.

1.5 Integrity

The Mathematics Division fosters an environment of respect, fairness, honesty, and openness by:
- Respecting LCC's Student Code of Conduct;
- Fostering respect and openness when dealing with a wide variety of students, providing placement (enforced), multiple modes of instruction and course offerings and times to meet our diverse student needs and the expectation that students will reciprocate with 100% effort;
- Encouraging student access to Instructors and Division Chair by posting office hours and setting up appointments;
- Respecting the values of the group without disrespecting the individual;
- Holding Students and Instructors to standards of integrity, honesty, and mutual respect;
- Maintaining grading standards; and
- Cultivating a collegial working environment, where each of us will encourage healthy debate and advocacy.

The Mathematics Division ensures the quality, consistency and integrity of our courses:
- Through regular assessment of our courses and sequences;
  Through coordination with faculty in the specific programs both within LCC and in transferring institutions;
- Through standards for hiring mathematics faculty;
- Via semi-annual meetings with the high school College Now mathematics instructors;
- With our Scope and Sequence document that guides our curriculum (It is reviewed and updated periodically to meet national standards.);
- Through the use of common assessments for many of our courses;
- Through regular interaction between course leads and full and part-time instructors; and
- Through regular evaluation of all faculty and staff.

1.6 Accessibility

The Mathematics Division strategically fosters learning opportunities by:
- Developing/revising/revamping curriculum and incorporating technology to meet national standards and program needs;
- Ensuring program availability:
- Scheduling classes for the convenience of students (offering a variety of times and days, evenings and Saturdays);
- Providing different modes of instruction (open-entry, variable credit, modularized instruction, different tracks);
- Supporting outreach center availability; and
- Enforcing appropriate placement.

Instructors and Staff are available to students in various ways, such as:
- Providing significant opportunities for interaction with students inside and outside the classroom;
- Providing office hours and TBA opportunities;
- Extensive free tutoring support via the Math Resource Center; and
- Providing, equipping, and staffing a Mathematics Computer Lab.

2) Strategic Directions

The Strategic Directions for Lane have been updated and expanded since the 2003-2004 Unit Plan. Please review the changes and provide specific examples of how your unit works to further these goals.

2.1 Transforming Students' Lives

2.1.1 Foster the personal, professional, and intellectual growth of learners by providing exemplary and innovative teaching and learning experiences and student support services.

The Mathematics faculty has always been at the forefront of innovative presentation, bringing enthusiasm, excitement and purpose to the classroom. LCC was one of the first schools in the country to integrate the use of graphing calculators throughout its transfer mathematics courses. Hands-on explorations including physical models, data collection, volume and weight measurement labs, and computer-based statistical or geometric projects are used extensively by all instructors in appropriate settings.

Our Math Resource Center (MRC) offers drop-in, one-on-one tutoring for all mathematics students, as well as an extensive library of instructional videos covering virtually every topic in the core mathematics curricula. (Many of our most popular videos were actually produced here at Lane Community College by our own instructors.) Continuing in this innovative tradition, we are currently (fall, 2004) piloting a new program developed by our instructors under a major NSF grant: "Flexible Sequence Algebra" (FSA) is a new way to build confidence and facility with the skills of traditional algebra courses in short, self-contained modules… when students encounter difficulty in one module, they can retake it immediately without significantly sacrificing progress in their overall studies.

Outside the classroom, the Mathematics Division addresses special needs in a variety of ways. We encourage students to utilize available resources (e.g., MRC, Academic Learning Skills, ADA, etc.), and advise them how best to access LCC's counselors and other student services. Instructors often look for different modes of instruction to assist students with difficulties. For example, some of our instructors have experience in providing math and testing anxiety assistance, and conduct both one-on-one and group workshops from time to time.

2.1.2 Commit to a culture of assessment of programs, services and learning.

Ultimately an instructional program should be assessed by its ability to provide students the learning opportunities they need, when they need it, and with a high rate of completion. What makes the Mathematics Division exemplary in all these areas is its on-going commitment to student success. In the classroom, student projects, portfolios, extensive group review and computer-based tools all are used in conjunction with traditional testing to give students timely feedback on their progress, as well as a sense of inclusion in the classroom culture. The use of innovation and technology throughout our courses is not just for "show": we believe that our high retention rates rely on the combination of relevant instructional methodology, recognizing and embracing our students' individual needs and gifts, and constant encouragement.

At the division level, any meaningful culture of assessment must ensure continuity and standards in curriculum. All major mathematics curriculum areas have Lead instructors, whose responsibilities include alignment with standards and periodic review of technology, texts and other resources appropriate for the course. Lead instructors also assist in mentoring new faculty.

The Math Division Scope and Sequence project is a dynamic process used to provide continuity and consistency between course offerings and between the division's programs (Developmental, Professional-Technical, College Transfer). The outlines produced by this on-going project serve as guides for instructors in aligning class lessons with course objectives and placement tests, and in assuring that prerequisite courses cover background content.

2.1.3 Position Lane as a vital community partner by empowering a learning workforce in a changing economy.

The most important contribution the Mathematics Division makes in partnership with our community is to ensure that students have access to the learning they need, when they need it, and can expect the best possible support for success in their studies here. All of these contributions are detailed elsewhere in this document (***see 2.1.1 above, 3.1 and 3.2 below***).

Some of the specific programs supported by the Mathematics Division include: Aviation Maintenance, Culinary, Dental, Elementary Education, Nursing and other Professional/Technical Programs, and a large transfer program which allows Oregon residents to earn the first two years of their University degrees at the community college. Mathematics staff supports these and other LCC programs by helping to develop appropriate specialized courses as needed, and to coordinate flexible scheduling and adequate external resources (e.g., tutoring, videos) that are the backbone of student success.

In addition to providing a culture of successful access and completion, the Mathematics Division reaches out to the community in a variety of ways: We assist with transfer-credit coursework in many of the local high schools ("College Now" program); We provide tutoring and testing opportunities at LCC's out-reach centers for MRC-credit and other distance-learning students; We sponsor the annual Math Skills Fair competition for high school students throughout Lane county; We coordinate community based advisory committees (such as the Pre-Engineering committee) which help develop long term goals, review research on mathematics reform, and advise on how best to implement appropriate new technologies.

2.2 Transforming the Learning Environment

2.2.1 Create a diverse and inclusive learning college: develop institutional capacity to respond effectively and respectfully to students, staff, and community members of all cultures, languages, classes, races, genders, ethnic backgrounds, religions, sexual orientations, and abilities

As detailed above and elsewhere in the Unit Plan (***see 3.1 – 3.3 below***), we believe the best way to respond to the diverse learning needs of our community is to provide flexible time and delivery options, instructional support that values every learning style, content that is timely and relevant to our students, and the resources for successful completion of their studies. The Mathematics Division staff all strives to create an inclusive, caring and supportive environment that respects equally every learning style and all cultural perspectives.

2.2.2 Create, enhance, and maintain inviting and welcoming facilities that are safe, accessible, functional, well-equipped, aesthetically appealing and environmentally sound

The new Science/Mathematics building was designed to give students a friendly and supportive environment in which to learn. Specifically, the building has dedicated tutoring labs, well-stocked video libraries, computer labs with appropriate updated software, and bright, open study areas for both quiet- or group-work. The offices and classrooms are large enough to comfortably accommodate students with disabilities, and public phones and copy machines are conveniently located throughout the building. Hallways are decorated with student-designed Science and Math projects, as well as numerous posters and displays chosen to pique their curiosity. Each term, some instructors post "challenge" problems on public blackboards, and offer prizes for correct solutions.

2.3 Transforming the College Organization

2.3.1 Achieve and sustain fiscal stability.

The Mathematics Division contributes significantly to the financial health of the college, and of the community at large by striving to offer the courses students need to complete their programs in a timely manner, and with the highest possible rate of success. As noted elsewhere in this document (***see 3.1 below***), all developmental (and most college-transfer) mathematics courses are offered every term, usually in a variety of time/presentation formats. Coupled with our comparatively very high completion rates, this flexibility and consistency in mathematics scheduling allows the diverse programs of the college to give their students the mathematics they need, when they need it. A side benefit of this consistency is that most mathematics classes are full every term, thus providing the highest possible reimbursements from the state funding formulas.

2.3.2 Build organizational capacity and systems to support student success and effective operations

A community college builds the capacity to support student success when it offers meaningful programs, in flexible formats, with very high rates of completion. The mathematics programs exhibit all of these characteristics, as documented elsewhere in the Unit Plan (***see 3.1 – 3.4 below***). In addition, the Mathematics Division has piloted numerous innovative programs over the years (integration of graphing calculators and computers into classes, on-line courses, use of video technology for instruction, and a major NSF grant to develop computer-based materials for exploring the use of Statistical Process Control methods.) Most recently, the Mathematics Division received a new NSF grant to develop and pilot a more flexible delivery system for the traditional Algebra sequences: "Flexible Sequence Algebra" (FSA).

2.3.3 Promote professional growth and provide increased development opportunities for staff both within and outside the college.

While the college generally supports a variety of professional development opportunities for all staff, the Mathematics Division has several specific features, which greatly enhance its ability to provide the best possible instructional service. In addition to a very open internal governance system (see the Mathematics Charter and Mathematics Administrative Procedures manual for details), staff may participate in faculty-led instructional colloquia several times each term. The division has an extensive internal library of reference materials including journals, texts in every topic, and instructor-developed handouts and sample exams filed by course. We have also recently implemented a new peer-partnering system whereby experienced part-time and full-time instructors mentor new instructors in the workings of the division.

3) Learning Centered Principles

The Learning Centered Principles for Lane have also been updated and expanded since the 2003-2004 Unit Plan. Please review and provide specific examples of how your unit works to integrate these principles into your unit's methods and outcomes.

3.1 Lane provides opportunities for transformation through learning.

The Mathematics Division contributes to this principle by giving students a wide variety of entry points, learning environments and flexible time schedules to accommodate their diverse needs with respect to learning the core mathematics necessary for productive careers and successful community participation.

For example: All developmental mathematics courses are offered every term (including summer), often in multiple sections. These sections include: traditional classroom format; the MRC (Math Resource Center) format which allows flexible credit options, with as little as one credit at a time and access to full-time, drop-in tutoring; "Flexible Sequence Algebra" (FSA) which is an LCC innovation currently funded by a major NSF grant (***see 2.1.1 above***); Multiple time formats including classes which meet 2, 3, or 4 times a week, with a choice of days, evenings or in some cases distance-learning options (internet); sections targeted to students with special needs, such as math-anxious students, "Women-in-Transition" (WIT), and technical/professional programs.

Most college-transfer courses are likewise offered at multiple times, and students can satisfy their math requirements for the Oregon Transfer Degree via the online sections of Math 105 (Introduction to Contemporary Math).

All of these opportunities help to streamline a student's path through the math they need for their programs, and our high completions rates help students develop the confidence that leads to a transformed view of their own learning experience.

3.2 Lane engages learners as active partners in the learning process.

The Mathematics Division is at the forefront of presentation and assessment innovation. For example: graphing calculators and mainstream computer-based tools (such as EXCEL) are integrated throughout the curriculum; hands-on modeling is used extensively where appropriate; student projects, portfolios, extensive group review and computer-based assessment tools are all used in conjunction with traditional testing to give students timely feedback on their progress; the MRC offers one-on-one tutoring to all students at every level, and a substantial portion of the advanced tutoring is done by our own high-performing students.

That student's use and benefit from these resources is clear from the division's high completion rates, and from substantial anecdotal evidence that they're generally successful in their various technical/professional and transfer programs.

3.3 Lane creates a learning environment that motivates and inspires students to recognize their responsibility for their own learning.

All Mathematics Division instructors require students to demonstrate what they've learned through a variety of assessment tools (***see 3.2 above***). Students are most often motivated by frequent feedback on their performance, and by opportunities to personalize their efforts (challenging extra-credit assignments, projects, portfolios, etc.)

In regard to the need for timely feedback, many instructors use weekly quizzes in addition to regular homework assignments to engage students in an environment in which taking the responsibility for their own success is continually rewarded.

3.4 Lane offers multiple options for learning, based on proven and innovative theories and methods that address the needs of diverse learners.

(***See 2.1.1, 3.1 and 3.2 above***.)

3.5 Lane commits to a culture of assessment of programs, services and learning, honoring the values of intellectual freedom, community responsibility and student need.

The Mathematics Division has a large commitment to the on-going re-evaluation of our scope and sequence in all core subjects (***see 2.1.2 above***). This allows us to incorporate new ideas and technology when appropriate, and to re-design the courses as our students' needs evolve.

Several of our courses are targeted to programs with special needs (Nursing, Welding Technology, and the groups noted in ***3.1*** above) and we meet as needed with coordinators from these programs to update the curriculum, review scheduling, etc.

We also have a community-based advisory committee for the pre-engineering program, which advises us on how well our advanced courses meet the needs of those students, and of the community at large.

3.6 Lane fosters knowledge and appreciation of diversity among staff and students and encourages pluralism and intercultural competence. Lane engages learners from diverse cultural and social contexts.

The best way to foster appreciation of diversity is to practice it. The Mathematics Division staff all strive to create an inclusive, caring and supportive environment that respects equally every learning style and all cultural perspectives.

As detailed elsewhere in the Unit Plan (***see 3.1 – 3.3 above***), we believe the most effective way to respond to the diverse learning needs of our community is to provide flexible time and delivery options, instructional support that values every learning style, content that is timely and relevant to our students, and the resources for successful completion of their studies.

3.7 Lane is committed to both individual and organizational learning.

The Mathematics Division commitment to individual and organizational learning is well documented above (***see 2.1.1 – 2.2.1, and 3.5 above***.)

3.8 Lane students and staff are a community of learners, all of whom contribute to learning.

(***See 2.1.1 – 2.2.1, and 3.5 above***.)

3.9 Lane promotes open communication among staff, students and the community within and across organizational and physical boundaries.

(***See 2.1.1, 2.1.3, 2.3, and 3.5 above***)

Part II. Unit Description

Chapter 1: Unit Description
Key Question: Who are you? Answer this question by providing the following information about your unit.

1) Unit Mission/Vision
Does your unit have a Vision or Mission Statement? Yes. ***When was it written or updated?*** 10/15/04 ***Do you have a process for regular review?*** Yes, as part of the Unit Planning process.

Mathematics Division

VISION

Mathematics is an instructional division that provides learning opportunities for students to transform their lives.

MISSION

The *mission* of the Mathematics Division is to provide accessible, affordable, high quality learning opportunities in mathematics that increase students' options in educational and career choices, that fulfill requirements for Lane Community College degrees and certificates, and that satisfy lower division transfer programs.

Our Developmental, Professional-Technical, and Lower Division College Transfer courses help students reach program and degree goals, upgrade skills, and enhance career choices. Our courses help students explore mathematics, develop and enhance their mathematics reasoning skills, and improve and strengthen their quantitative literacy. The mission of the Mathematics Division is to offer courses in compliance with the needs of other college programs and majors; including Mathematics. Almost all students are required to take mathematics at some time during their attendance at Lane Community College.

2) Catalog Description
How do you describe your unit (sub units) and instructional offerings in the college catalog? See below.

How does your unit manage the review of catalog copy each year? The **Mathematics** Administrative Coordinator distributes proofing hard copies to course leads, who compile all changes onto the proofing document and return it to the AC, who then makes the changes to the files. This process is repeated at least twice, and course leads complete a final proof before files are submitted to Curriculum & Scheduling.

Mathematics and its Sub-Unit Descriptions

The Mathematics Division enables students to learn the mathematical knowledge and skills they need by offering a variety of courses and formats.

The Mathematics Division utilizes various modes of instruction, a number of different time blocks, open-entry/exit, variable credit, independent study, multiple tracks, and courses designed to meet a myriad of student needs. These courses are divided into three sub-units: Developmental, Professional/Technical, and Lower Division Transfer.

Pre-transfer level mathematics courses (developmental and professional/technical) provide basic work and life skills. All courses in these two sub-units satisfy college program requirements or prerequisites for requirements. They prepare students for subsequent mathematics and mathematics-related courses that are necessary components of many education and career paths.

Developmental (DEV)

Developmental level mathematics courses prepare students for either work in transfer courses or professional/technical majors. Developmental courses support other college programs or degree requirements. Developmental offerings provide options for students to start at their skill level (via placement testing or prerequisite course work) and work up to the level required for transfer or program requirements.

Professional/Technical (PT)

Theses courses provide support for professional technical programs. These courses teach students the mathematics they need to succeed in their careers in business, computer information systems, health occupations, mechanics, and technical fields.

Lower Division Transfer (LDT)

These courses teach the first two years of college mathematics needed by students of architecture, business, computer science, engineering, science, teaching, and other bachelor's degree programs.

All three sub-units offer mathematics literacy courses. These courses help people become skilled and comfortable with everyday mathematics.

CATALOG DESCRIPTIONS

Mth 020 *MATH RENEWAL* (DEV)
(3 credits)
This course gives a review of averages, order of operations, fractions, decimals, equation solving, and problem solving. The major emphasis will be on using all the review concepts on ratio and proportion, percents, measurement and simple geometry. Some applications for technical careers will be incorporated into the class for students in professional/technical programs. Required equipment: DAL scientific calculator– purchase after instructor recommendation.

Mth 020 *BASIC MATH REVIEW* (MRC) (DEV)
(3 credits, variable)
Offered as a variable credit (1-3) course using tutorial materials for self-paced study in a resource center setting (MRC).

This is a course in practical mathematics, including the arithmetic operations of whole numbers, fractions, and decimals. Estimation of whole number operations and square roots, calculator usage, ratio, percent, data analysis, graphs, statistics, and measurement are also covered. Whole Number and Fraction Concepts, Arithmetic Operations, and Exponents, 1 credit. Decimals, Ratio and Percent, 1 credit. Averages, Graphs, Measurement, and Roots, 1 credit.

[Permission to enroll is required for independent study. Most students are more successful in lecture Mth 020 than independent study, Mth 020 (MRC).]

Mth 022 *NUMBER REASONING* (DEV)
(1 credit)
Individualized study. Reasoning with whole numbers, fractions, decimals, and percents. Students will be provided practice in comparing, estimating and reflecting on the reasonableness of answers. Students will examine answers to problems and learn to evaluate whether an answer is of reasonable size. It is expected that students enter this course knowing how to compute by hand and calculator with numbers, although reminders of those skills will be included.

Mth 025 *BASIC MATH APPLICATIONS* (PT)
(3 credits)
Basic Mathematics Applications is a 3-credit course emphasizing the application of basic mathematics to everyday life and business situations. Everyday life topics include mathematics for personal finance, mathematics applied to personal health, mathematics applied to household and yard, and mathematics found in newspapers and magazines. Business topics include applications involving payroll, simple and compound interest, discounts, markup and markdown, annuities, investments, and sales tax. Additional topics may be chosen from mathematics applied to travel, recreation and sports, world resources and social issues. Basic skills in fractions, decimals, percents and ratios will be assumed. The course will develop skills in measurement, metric system, signed numbers, using graphs and tables, and introductory probability and statistics. The course will focus on group work, skill maintenance, investigations, and projects.

Mth 026 ***DOSAGE MATH FOR MOAs*** **(PT)**
(2 credits)
This is a course in medical dosage calculations for medical office assistants. A brief review of decimals and percents related to medical dosages is included. Students are given hands-on experience with the metric, household, and apothecary measurement systems as related to medical dosages. Students learn equivalences across the measurement systems. The course covers unit conversions, preparations of solutions, oral medication dosages, and pediatric dosages. This course does not include dosage conversions necessary to deliver drugs intravenously. Students will do calculations by hand and with a calculator. This course does not include dosage conversions necessary to deliver drugs intravenously. Students who are planning to be nurses or emergency medical technicians should take Dosage Computation Math for Nurses (Mth 054).

Mth 052 ***MATH FOR INTRODUCTORY PHYSICAL SCIENCE*** **(PT)**
(4 credits)
This course covers the basic mathematics and algebra used in an introductory chemistry or other science course. Topics include dimensional analysis, approximate numbers, exponential and scientific notation, signed numbers, scales, graphs, metric measurement, percent applications, proportions, linear equations and formulas, the algebra of units, introduction to logarithms, and basic geometric measurement. Scientific calculator and metric ruler required.

Mth 053 ***METRIC MEASUREMENT*** **(DEV)**
(1 credit)
An independent study course offered under the supervision of an instructor. The course provides hands-on experience in metric measurement and encourages metric common sense: the ability to estimate and think in metric units, metric prefixes, metric symbols, conversion of units, temperature, length, mass, and volume.

Mth 054 ***DOSAGE COMPUTATION FOR NURSES*** **(PT)**
(1 credit)
During the course, students will be required to demonstrate retention of reasoning, estimation, and calculating skills using basic mathematics, dimensional analysis, and metric measurements. The course covers calculation of medical dosages for members of the health professions including unit conversions, preparations of solutions, oral medication dosages, and pediatric dosages. Students in the nursing program will study flow rates for intravenous infusions. Nursing students must reach a level of proficiency set by the Nursing Department. Students will do calculations with and without a calculator.

Mth 058 ***WORD PROBLEMS IN ALGEBRA*** **(DEV)**
(1 credit)
An independent study course offered under the supervision of an instructor. This course requires some beginning algebra skills. It covers methods for solving standard word problems using basic algebra skills.

Mth 060 ***BEGINNING ALGEBRA*** **(DEV)**
(4 credits)
This course is for the student who has not taken algebra recently, or who desires a slow-paced introduction to the subject. This is the first term of a two-term sequence in introductory algebra. Topics include a selective review of arithmetic, tables and graphs, signed numbers, equation solving,

linear equations, and ratio and proportion. Mth 060 prepares students for Elementary Algebra (Mth 065).

Mth 060 and Mth 065 provide a two-term sequence preparatory to Essentials of Algebra (Mth 090) or Intermediate Algebra (Mth 095). Scientific calculator required.

Mth 060 ***BEGINNING ALGEBRA (MRC)*** **(DEV)**
(4 credits, variable)
Offered as a variable credit (1-4) course using tutorial materials for self-paced study in a resource center setting (MRC). Permission to enroll is required for independent study. Also, offered as a 4-credit lecture course. [Most students are more successful in lecture Mth 060 than independent study, Mth 060 (MRC).] Scientific calculator is required.

Mth 065 ***ELEMENTARY ALGEBRA*** **(DEV)**
(4 credits)
This is the second term of a two-term sequence in introductory algebra. Topics include systems of linear equations, quadratic equations, polynomials, rational expressions, exponents and radicals. When taken after Beginning Algebra (Mth 060), prepares student for Essentials of Algebra (Mth 090) or Intermediate Algebra (Mth 095). A scientific calculator is required.

Mth 065 ***ELEMENTARY ALGEBRA (MRC)*** **(DEV)**
(4 credits, variable)
Offered as a variable credit (1-4) course using tutorial materials for independent study in a resource center setting (MRC). Permission to enroll is required for independent study. Also, offered as a 4-credit lecture course. [Most students are more successful in lecture Mth 065 than independent study, Mth 065 (MRC).]

Second term of a traditional sequence in algebra. Course covers factoring, polynomials, rational expressions, radicals, quadratic equations, and linear systems. When taken after Beginning Algebra (Mth 060), prepares student for Essentials of Algebra (Mth 090) or Intermediate Algebra (Mth 095). Scientific Calculator required.

Mth 070 ***INTRODUCTORY ALGEBRA*** **(DEV)**
(5 credits)
Mth 070 is a fast paced review of algebra for students with recent algebra experience. (For others, Mth 060 and 065 provide a more relaxed and thorough introduction to the subject. If you are unsure whether to take Mth 070 or Mth 060, seek the advice of a Counselor or Advisor). Mth 070 is the beginning term of a two-term sequence (Mth 070, 095) leading to Geometry (Mth 097), Introduction to Contemporary Mathematics (Mth 105), College Algebra (Mth 111), or Fundamentals of Elementary Mathematics 1 (Mth 211). Topics include problem solving, signed numbers, exponents, equations, polynomials, graphing, systems of equations, radicals, and quadratic equations. A scientific calculator required.

Mth 071 ***INFORMAL GEOMETRY 1*** **(DEV)**
(2 credits)
An independent study course offered under the supervision of an instructor. This informal course in geometry requires elementary algebra skills. Topics include angles, parallel and perpendicular lines,

polygons, polyhedra, transformations, triangles, congruence, quadrilaterals, and the coordinate plane. Basic vocabulary and elementary relationships are stressed. Suitable for students with little background in geometry and who want new concepts introduced one at a time. MTH 071 and MTH 072 together are one way to fulfill the geometric prerequisite for Fundamentals of Elementary mathematics: MTH 211, 212, 213. They do not satisfy the geometry prerequisites for Trigonometry MTH 112 or MTH 251 Calculus 1.

Mth 072 ***INFORMAL GEOMETRY 2*** **(DEV)**
(2 credits)
An independent study course under the supervision of an instructor. This course includes concepts and computation of perimeter, area, surface area, and volume; applications of similar figures; the Pythagorean Theorem, and elementary trigonometric ratios; attributes and measurement of circles, prisms, pyramids, cones, and cylinders. Transformations related to coordinate geometry. MTH 071 and MTH 072 together are one way to fulfill the geometric prerequisite for Fundamentals of Elementary Mathematics MTH 211, 212, 213. They do not satisfy the geometry prerequisites for Trigonometry MTH 112 or MTH 251 Calculus 1.

Mth 076 ***APPLIED GEOMETRY FOR TECHNICIANS*** **(PT)**
(4 credits)
A first course in geometry with an introduction to right triangle trigonometry. Algebraic skills necessary for geometry and other topics will be introduced as needed. The course will also include estimation; percent; measurement in the US customary and Metric systems; unit analysis with linear, square and cubic units; ratio and proportion; and an introduction to spreadsheets. The geometry covered will include mathematics vocabulary, principles and applications of the following: angle measure; parallel lines; polygons, similarity and congruence; perimeter and circumference; area and volume of basic figures such as prisms and cylinders; and right triangle trigonometry.

Mth 086 ***APPLIED ALGEBRA FOR TECHNICIANS*** **(PT)**
(4 credits)
The primary focus in this course will be algebraic skills needed to continue on in the study of applied mathematics. These will include but are not limited to signed numbers, continued work with formulas, integer exponents, scientific notation, the Cartesian coordinate system, linear equations and their graphs, algebraic expressions, and quadratic equations and their graphs. More work will be done with proportions and variation, unit analysis, the Metric system of measurement, and tolerances. Fraction skills will be reviewed as needed. Geometry will be integrated throughout the course and skills learned in Mth 076 Applied Geometry for Technicians will be reviewed periodically (as needed).

Mth 090 ***ESSENTIALS OF ALGEBRA (MRC)*** **(DEV)**
(4 credits, variable)
Offered as a variable credit (1-4) course using tutorial materials for independent study in a resource center setting (MRC). Permission to enroll is required for independent study.

Third term of a one-year sequence in algebra; function concept, polynomials, rational equations, exponents, quadratic functions, introduction to conic sections, exponential and logarithmic functions, inequalities. Does not satisfy prerequisite material for College Algebra Mth 111, but does satisfy Associates of General Studies, and Associates of Applied Science degree requirements for a limited number of Lane programs. Scientific Calculator is required.

Mth 095 *INTERMEDIATE ALGEBRA* (DEV)
(5 credits)
This course leads to Geometry (Mth 097), Introduction to Contemporary Mathematics (Mth 105), College Algebra (Mth 111), or Fundamentals of Elementary Mathematics 1 (Mth 211). Topics include equations, function notation, polynomials, coordinate graphing, rational equations, radical equations, exponents, quadratic functions, exponential and logarithmic functions, inequalities and problem solving methods. Scientific calculator required. A graphing calculator (TI-83) is suggested for students taking math courses above Mth 095.

Mth 096 *USING THE SCIENTIFIC GRAPHING CALCULATOR* (DEV)
(1 credit)
This course is designed to introduce students to effective use of the graphing calculator. The one credit course emphasizes use of scientific function keys, memory cells, techniques to evaluate expressions, how to graph functions, and how to graphically solve equations. It includes programming capabilities of the calculator. Emphasis is on establishing effective viewing windows, solving equations, evaluating and graphing functions in parametric mode, and writing/using programs to more effectively tap the power of the calculator. A scientific graphing calculator is required. The instructor may specify a specific calculator.

Mth 097 *GEOMETRY* (DEV)
(4 credits)
A course in informal geometry covering the study of lines, planes, polygons, circles, solids, area, perimeter, volume, surface area, Pythagorean Theorem, congruence, and similar figures. Applications and exploration of geometry topics rather than proofs will be stressed. This course is the geometry prerequisite for Mth 111, 112, and 251. It is one way to satisfy the geometry prerequisite for Mth 211. Scientific calculator required.

Mth 105 *INTRO TO CONTEMPORARY MATHEMATICS* (LDT)
(4 credits)
Survey of Applications of Mathematics for non-science major including statistics, measurement, and mathematical modeling. Also available through Distance Learning (Winter term).

Mth 111 *COLLEGE ALGEBRA* (LDT)
(5 credits)
College algebra is the study of basic functions and their applications. This includes polynomial, rational, exponential, and logarithmic functions and their inverses. Other topics include an introduction to sequences and series, the binomial theorem, and nonlinear systems of equations. In accordance with national recommendations, this course emphasizes skill building, problem solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of technology. A scientific programmable calculator capable of displaying graphs of functions is required. However, students will be held accountable for many skills without a calculator. (See current calculator recommendation chart.)

Mth 112 *TRIGONOMETRY* (LDT)
(4 credits)
Trigonometry has wide applications in the world around us. It is a vital tool in construction, physics, and engineering. Trigonometry is preparatory for Calculus I (Differential Calculus, Math 251). The major topics covered include radian measure, circular functions and their graphs, right triangle ratios and related trigonometric functions, identities, solving trigonometric equations, law of sines, law of cosines, and applications. Other topics include polar coordinates, parametric equations, vectors, and conic sections. A graphing calculator is required.

Mth 211 *FUNDAMENTALS OF ELEMENTARY MATHEMATICS 1* (LDT)
(4 credits)
First course of a three-term sequence, required or recommended for prospective elementary teachers entering most colleges. Topics include problem solving strategies, functions and patterns, set theory, numeration systems, whole numbers, integers and number theory. The order of the topics may vary with instructor and text.

Mth 212 *FUNDAMENTALS OF ELEMENTARY MATHEMATICS 2* (LDT)
(4 credits)
Second course of a three-term sequence, required or recommended for prospective elementary teachers entering most colleges. Topics include problem solving strategies, fractions, rational numbers, real numbers, ratio, proportion, percent, scientific notation, descriptive statistics, and topics from probability. The order of topics may vary with instructor and text.

Mth 213 *FUNDAMENTALS OF ELEMENTARY MATHEMATICS 3* (LDT)
(4 credits)
Third course of a three-term sequence required or recommended for prospective elementary teachers entering most colleges. Topics include problem solving strategies, systems of measure, two- and three- dimensional geometry, symmetry, congruence, similarity, geometric constructions, tessellations, topics from coordinate and transformational geometry. The order of topics may vary with instructor and text.

Mth 231 *DISCRETE MATHEMATICS 1* (LDT)
(4 credits)
First course in three-term sequence fulfilling the Discrete Mathematics requirement for enrolling in upper division computer Science courses at the University of Oregon and Oregon State University. Topics include formal logic, methods of proof, sequences, mathematical induction, recursion, set theory, combinatorics, elementary counting techniques, relations, functions, analysis of algorithms, Boolean algebra, finite state machines, graphs and trees. The order of the topics may vary with instructor and text.

Mth 232 *DISCRETE MATHEMATICS 2* (LDT)
(4 credits)
Second course in three-term sequence fulfilling the Discrete Mathematics requirement for enrolling in upper division computer Science courses at the University of Oregon and Oregon State University. Topics include formal logic, methods of proof, sequences, mathematical induction, recursion, set theory, combinatorics, elementary counting techniques, relations, functions, analysis of

algorithms, Boolean algebra, finite state machines, graphs and trees. The order of the topics may vary with instructor and text.

Mth 233 *DISCRETE MATHEMATICS 3* (LDT)
(4 credits)
Third course in three-term sequence fulfilling the Discrete Mathematics requirement for enrolling in upper division computer Science courses at the University of Oregon and Oregon State University. Topics include formal logic, methods of proof, sequences, mathematical induction, recursion, set theory, combinatorics, elementary counting techniques, relations, functions, analysis of algorithms, Boolean algebra, finite state machines, graphs and trees. The order of the topics may vary with instructor and text.

Mth 241 *ELEMENTARY CALCULUS 1* (LDT)
(4 credits)
Differential calculus (without trigonometry) for business and social sciences. Some review of algebraic techniques with major emphasis on limits, continuity, derivatives, and their applications. Exponential and logarithmic functions, their derivatives and applications, and introductory mathematics of finance.

Mth 242 *ELEMENTARY CALCULUS 2* (LDT)
(4 credits)
Integral calculus (without trigonometry) for the business and social sciences. Integration and applications for single variable functions, techniques of integration, partial differentiation methods for multivariate functions, and their relative extrema, and matrix algebra.

Mth 243 *INTRO TO PROBABILITY AND STATISTICS* (LDT)
(4 credits)
Basic theory and applications of statistics and probability; distributions of data, probability distributions, measures of central tendency and variability; basic concepts of statistical inference, including confidence intervals, hypothesis testing, correlation and regression, chi-square, and analysis of variance. This course is in the cluster 241, 242, and 243. This cluster satisfies one of the "clusters" of math requirements for the University of Oregon School of Business.

Mth 251 *CALCULUS 1 (Differential Calculus)* (LDT)
(5 credits)
A first-term calculus course including a brief review of algebra and trigonometry followed by development of the derivative from the perspective of rate of change, slope of the tangent line, and numerical and graphical limits of the difference quotient. The difference quotient is used as a basis for formulating analytical methods, which include the product, quotient, and power rules; implicit differentiation; and procedures for differentiating polynomial, exponential, logarithmic, and trigonometric functions. The course has a focus on practical applications where a mixing of analytical, graphical, and numeric methods supports one another. A key component of the course is to help develop student's abilities to read, understand and discuss differential calculus concepts. A lecture/laboratory component provides opportunities for students to work in groups, verbalize concepts with one another, pursue guided project activities, and explore applications of concepts through technology. Use of a programmable graphing calculator is required.

Mth 252 ***CALCULUS 2 (Integral Calculus)*** **(LDT)**
(5 credits)
A second-term calculus course, covering anti-derivatives and definite integrals with emphasis on concept application to the "real world." Concepts are developed giving equal time to graphical, numerical, and analytical approaches. A key component of the course is to help develop students' abilities to read, understand, and discuss applied integral calculus concepts. Graphing programmable calculator and computer technology is utilized to lessen traditional drudgery and enhance the learning experience. A lecture/lab component of the course allows students time to verbalize concepts with one another, pursue guided project activities, and explore applications of concepts through technology.

Mth 253 ***CALCULUS 3 (Infinite Series & Sequences)*** **(LDT)**
(4 credits)
This is the third-term of a six-term sequence. Indeterminate forms and improper integrals. Sequences and series. Investigation of the convergence of series. Taylor series and power series. Miscellaneous topics include parametric and polar equations and conics. Use of programmable graphic calculator is required.

Mth 254 ***VECTOR CALCULUS 1 (Intro to Vectors and Multi-dimensions)*** **(LDT)**
(4 credits)
This is the fourth-term of a six-term sequence. Major emphasis is on three -dimensional vectors and differential calculus of several variables. Use of a programmable graphing calculator is required.

Mth 255 ***VECTOR CALCULUS 2 (Intro to Vector Analysis)*** **(LDT)**
(4 credits)
This is the fifth-term of a six-term sequence. Major emphasis is on multiple integration, vector fields, and applications. Use of programmable graphing calculator required.

Mth 256 ***APPLIED DIFFERENTIAL EQUATIONS*** **(LDT)**
(4 credits)
This is the last of a six-term sequence. The course covers methods of solving ordinary differential equations and includes three types of solutions-elementary methods, convergent power series and numeral methods, with applications to physical engineering science.

Mth 261 ***INTRO TO LINEAR ALGEBRA*** **(LDT)**
(4 credits)
Systems of Linear Equations, vectors in a geometric setting, real vector spaces, matrices, operations on matrices, inverse of a matrix, determinants, linear transformations, dot product and cross product, eigenvalues and Eigenvectors.

Mth 261A ***INTRO TO LINEAR ALGEBRA (narrower focus)*** **(LDT)**
(2 credits)
See course description above for Mth 261.

3) History/Significant Program Events

How did your instructional unit evolve at Lane? The Mathematics Division has served the entire institution since Lane's inception. ***What significant events have marked your growth?*** Courses are required to meet General Education and Distribution Requirements for **ALL** Lane degrees and certificates. ***Do you have a system for maintaining an archival history of your unit?*** Departmental and Division Office files. We do not currently have the resources required to gather and organize the data other than on a "if we get to it" fashion. ***Do you have annual events that are representative of your unit's goals or teaching methods?*** We host an annual Math Skills Fair event for all local area high school mathematics students. Mathematics faculty also sponsor a Mathematics Colloquium (informal chat sessions), for all staff who are interested in improving the teaching and learning of mathematics and related subjects.

4) Degrees and Certificates

What degrees or certificates does your unit provide? N/A

If you are a transfer program and don't offer degrees or certificates, how do your instructional offerings serve the AAOT, AS, AGS, or AAS degrees? N/A ***Do any of your courses support Professional Technical Programs?***

5) Organizational Structure

Please provide a description of how your unit is administratively organized within Lane's instructional structure.

The Administrative Coordinator, Administrative Specialist, Administrative Support Specialist, Grant Coordinator, Office—Student Support Specialist, Mathematics Resource Center (MRC) Director, MRC Instructional and Testing Specialists, and Faculty (part and full time) report directly to Division Chair. The Division Chair reports to the Associate Vice President of Instruction.

6) Staff/Faculty

Please provide a list of your faculty and staff. For faculty, indicate FTE appointment, educational credentials, and primary area of expertise/instruction. For staff, indicate FTE appointment and primary job responsibility.

Name	FTE	Educational Credentials	Expertise/Instruction
Bernardy, Donna M.	1.0	B.A., A.A.	Mathematics/Temporary
Deggelman, Penelope	1.0	M.S., B.S., A.A.	Mathematics
Green, Dale E.	1.0	M.A., B.A.	Mathematics
Griffiths, William S.	1.0	M.S., B.A	Mathematics
Hill, Benjamin L.	1.0	Ph.D., M.S., B.A.	Mathematics
Kirkpatrick, Vicky	1.0	M.S., B.S.	Mathematics
Larson, Jody	1.0	M.S., B.S., A.A.	Mathematics/Temporary
Miner, Catherine	1.0	M.S., B.S.M.E., B.A.	Mathematics/Engineering
Moore, Philip	1.0	M.S., B.A.	Mathematics
Murphy, Deanna	1.0	M.S., B.A.	Mathematics
Myers, Steven L.	1.0	M.S., B.S.	Mathematics
Selph, Stephen L.	1.0	M.S., B.S.	Mathematics

Name	FTE	Educational Credentials	Expertise/Instruction
Shellabarger, David C.	1.0	M.S., B.S.	Mathematics
Smith, Gayle L.	1.0	M.S., B.S.	Mathematics
Stinnett, Mary E.	1.0	Ph.D., M.S., M.ED., B.S.	Mathematics
Thompson, Robert	1.0	M.S., B.S., A.A.	Mathematics/Engineering
White, Karen Louise	1.0	M.S., B.A.	Mathematics

Name	FTE	Primary Job Responsibility
McNair, Don	1.0	Mathematics Division Chair
Nelson, Jana	1.0	Mathematics Administrative Coordinator
Willoughby, Irene	1.0	Administrative Specialist
Barnum, Siv Serene	1.0	Administrative Support Specialist—Grant Coordinator
Spencer, Darcy	1.0	Office—Student Support Specialist
Dawson, Kimberly	0.635	Testing Specialist
Albrethson, Kristen	0.625	Instructional Specialist
Cassidy, Jean	0.625	Instructional Specialist
Steele, John	0.875	Instructional Specialist
Olsen, Eric	0.75	Instructional Specialist
Moore, Jan	0.75	Instructional Specialist

7) Student Profile

Please provide demographic data for your student population. N/A

8) Facilities and Equipment

Describe your campus space. What are its strengths? Its challenges? What are your utilization ratios? Provide a copy of your equipment inventory. What are your equipment strengths? Challenges? Do you have any plans in place for equipment replacement?

- Campus Space:
  - Availability
    - Is adequate (see comment in bullet below) for our current needs.
    - More classroom availability during 'prime-time' hours of 9 am to 1 pm is desirable to meet student demand—but students are quasi-accommodated during non 'prime-time' hours.
  - Strengths
    - Current classrooms enable our faculty to "create appropriate learning environments"
    - Location to labs and equipment is adequate
  - Weaknesses
    - Availability of adequate faculty office space
    - Location of faculty offices in relation to colleagues and math office (too spread out)
- Utilization Ratios:
  - Awaiting meaningful data—but classrooms are fully utilized from 7 am to 10 pm, Monday through Friday, Fall through Spring terms.
- Equipment:
  - Is adequate to meet our needs.

- Is replaced through our M& S, ICP funds, and TACT requests. Faculty computers are now on the college's replacement cycle.
- Our Unit Plan will request replacement/enhancement funds (out side our budget) through the Chapter Four Initiative process.

9) <u>Budget Profile</u>

Provide a profile of your General Fund Budget. If appropriate, provide a profile of Restricted Fund 8 (grants, etc.) and Restricted Fund 9 (tuition-based sections).

- General Fund:
  - General Fund Allocation $1,754,681
  - Actual Cost of Operation $1,794,885
  - Revenues $40,212
  - Student 03-04 FTE 961
  - Cost per Student FTE $1,868

- Restricted Fund 9:
  - Tuition (less bad debt) $660,124
  - Actual Cost of Operation $457,487
  - Revenue Over $202,637
  - M&S (to budget) $9,100
  - 50% to PT budget $96,769

  (Note: this is a potential. Only what is necessary to cover part-time faculty overages actually goes to our budget)

Part III. Performance 2003-2004

Chapter 2: Program Outcomes Data, 2003-2004

Key Question: What were the results of providing your program in 2003-2004 as demonstrated by student enrollment, student success, and cost efficiencies? ***Using the provided spreadsheet****, please include assessment of program outcomes as defined in your 2003-2004 Unit Plan.*

1) Enrollment data

Please provide the following enrollment data for 2003-2004:

- **Program Level: Student FTE**

	Summer 03	Fall 03	Winter 04	Spring 04	Year Total
	82.76	**358.19**	**271.48**	**248.14**	**960.57**

- **Course Level: Student FTE ('03-'04)**

  (Spreadsheet available)

- **Student FTE/Faculty FTE ratios**

  (Awaiting meaningful data)

- **Capacity Analysis ('03-'04)**

	Summer 03	Fall 03	Winter 04	Spring 04	Year Total
	84.0%	**93.1%**	**88.1%**	**85.2%**	**88.6%**

2) Student Success Data

Please provide the following student success data for 2003-2004: *Note the following data is a FYI only:*

	Completion Rate				Success Rate			
Mathematics	F	W	Sp	Annual	F	W	Sp	Annual
2001/2002	80.26%	79.40%	76.84%	78.98%	76.12%	75.07%	71.45%	74.42%
2002/2003	80.79%	82.98%	81.16%	81.62%	74.99%	78.98%	74.49%	76.16%
2003/2004	81.29%	82.16%	78.40%	80.74%	75.18%	77.37%	73.77%	75.49%

Mathematics **Fall Aggregates** (F99, F00, F01, F02, F03):

Completion Rate					Success Rate				
F99	F00	F01	F02	F03	F99	F00	F01	F02	F03
77.89%	75.72%	80.26%	80.79%	81.29%	74.06%	70.78%	76.12%	74.99%	75.18%

3) <u>Budget</u>

Please provide the following budget information:

- **General Fund**:
  - General Fund Allocation $1,754,681
  - Actual Cost of Operation $1,794,885
  - Revenues $40,212
  - Student 03-04 FTE 961
  - Cost per Student FTE $1,868

- **Restricted Fund 9**:
  - Tuition (less bad debt) $660,124
  - Actual Cost of Operation $457,487
  - Revenue Over $202,637
  - M&S (to budget) $9,100
  - 50% to PT budget $96,769

  (Note: this is a potential. Only what is necessary to cover part-time faculty overages actually goes to our budget—the remainder is returned to college general fund)

- **FIPSE Grant** (3 year $400,000 grant to develop and implement a modularized intermediate algebra course)

Chapter 3: Program Outcomes Analysis, 2003-2004
Key Question: Please provide a summary analysis of your projected program outcomes for 2003-2004. Please include assessment of program outcomes as defined in your 2003-2004 Unit Plan.

1) How effectively did you fulfill your unit's mission?

Mathematics Division Mission:

The mission of the Mathematics Division is to provide accessible, affordable, high quality learning opportunities in mathematics that increase students' options in educational and career choices that fulfill requirements for Lane Community College degrees and certificates, and that satisfy lower division transfer programs.

The three main qualifiers of learning opportunities in the mission statement are: accessibility, affordability, and high quality. The approach used to gather the evidence consisted of listing what is currently available and / or being implemented in the Mathematics Division. When an item has been assessed, the information is included with that item.

Accessible Learning Opportunities in Mathematics

For the purpose of answering this question, "accessible" is defined as the Mathematics Division's ability to meet the need of those who enter our doors.

1. The Mathematics Division enables students to learn the mathematical knowledge and skills they need by offering a variety of courses and formats.
   - These courses are divided into three sub-units: Developmental, Professional/Technical, and Lower Division Transfer.
   - The division of sub-units allows students entry at various levels from arithmetic and other developmental mathematics, professional technical mathematics, and through lower division transfer courses.
   - The Mathematics Division utilizes various modes of instruction, a number of different time blocks, open-entry/exit, variable credit, independent study, multiple tracks, and courses designed to meet a myriad of student needs.
   - The Mathematics Division offers students a variety of ways to study in order to adjust to their needs and increase their success: late-start classes, cooperative learning, video tapes (overnight checkout available), traditional lecture, lecture/lab, and a new and innovative modularized instruction (Flexible Sequence Algebra).

2. The Mathematics Division enables students to learn the mathematical knowledge and skills they need by offering instructor and staff availability and a tutoring center.
   - Instructor and Staff Availability:
     - Providing significant opportunities for interaction with students inside and outside the classroom;
     - Providing office hours and TBA opportunities;
     - Participation in free tutoring support via the Math Resource Center; and
     - Providing, equipping, and staffing a Mathematics Computer Lab

- Math Resource Center Availability
    - Extensive free tutoring support via the Math Resource Center (open 40 hours per week)
    - Quiet room for studying
    - Service counter providing check-in / out of videos on all topics
    - Separate rooms for developmental and traditional mathematics students

3. The Mathematics Division enables students to learn the mathematical knowledge and skills they need by addressing student needs

    - Offer courses over a wide range of times (times of day, times of year, mini-courses before start of school)
    - Offer flexible scheduling
    - Provide a variety of learning environments to accommodate different learning styles, as practical (e.g., classroom lecture, classroom lab, independent study, round tables, field trips)
    - Use alternative delivery systems when appropriate
    - Examples of alternative delivery systems: computer, distance, Internet
    - Examples of where or when appropriate: at outreach centers, on site for interested employers, Florence, Cottage Grove, locations or systems that would attract at-risk students
    - Offer courses in a variety of locations (e.g., main campus, outreach, virtual, business sites)

Affordable Learning Opportunities in Mathematics

For the purpose of answering this question, "affordable" is defined as the Mathematics Division's ability to provide quality mathematics education at the lowest cost possible without sacrificing the quality.

1. Providing compatible transfer classes to local universities and colleges

    - Students transferring from one school to another should be able to move seamlessly through a sequence of math classes regardless of where the classes are being taken.

2. Department cost cutting efforts to avoid additional student fees
    - Mathematics Division does not place a fee on students who need to transfer down a level of a course
    - Courses available throughout the year, allowing students to start their academic goals when their schedule allows them
    - Mathematics staff are diligent in observing cost-saving measures:
        - Reuse/recycle supplies/materials
            - Reuse supplies;
            - Reuse/recycle office furniture and equipment;
            - Recycling of paper products for tutoring scratch paper;
            - Reuse and recycle materials (transparencies, overheads);
            - Avoid waste by reusing course materials whenever possible;
        - Conserve supplies;
            - Limiting copying and printing;
            - Try to limit handouts to only those necessary without sacrificing quality;

- Conserve materials;
- Be conscious of spending;
- Wise use of supplies;
- Cost effective use of supplies;
- Often buying simple office supplies for own use from own pocket;
- Entering syllabi/practice tests/ worksheets on-line;
- Utilize data systems organized without paper (i.e., Banner, Groupwise email);
    - Making do with less;
        - Computers used beyond their normal life expectancy;
        - Computer hand-me-downs to part-time staff.

- Staff do most of own typing with limited classified support staff available.

3. Achieving Financial Stability within the department
    - Mathematics courses are required for all programs and majors and that translates to:
        - Constant high demand for classes and high FTE;
        - Continued stability in terms of new student populations;
        - Availability of student base all year permits us to budget appropriately;
        - Ability to generate revenue through full classes and tuition-based offerings;
        - Running classes at or over capacity to serve students; and
        - Operating within our budget.
    - The Mathematics Division offers approximately 1/3 of its courses tuition-based (all summer term courses are tuition-based), which frees up general fund dollars for other programs and divisions.
    - The Mathematics Division continues greater use of part time instructors, which helps our budget bottom line but places more demand on staff (i.e., budget monitoring, payroll contracts and Banner approvals, tuition-based spreadsheets, etc.) and on faculty with respect to committee work, curriculum development, coordination, leadership responsibilities and mentoring.

    To be emphasized: This increased use of part-time instructors is NOT an ideal situation for the division, even though it contributes to the financial stability of the college.

4. Ability to allow students to rent / borrow expensive equipment.
    - Mathematics Computer Lab
        - Division College Transfer courses are scheduled in this room throughout the year.
        - The room is also used as a drop-in mathematics open computer lab for students with assistance available.
    - Books on reserve in the library
    - Calculator Rental

High Quality Opportunities in Mathematics

For the purpose of answering this question, "high quality" is defined as the Mathematics Division's ability to provide excellence in the teaching and learning of mathematics. Refer to the second question of this chapter for discussion on the quality of learning opportunities in the Mathematics Division.

1. To make content in mathematics courses pertinent, coordinated, and up-to-date.

2. To use effective teaching strategies and apply appropriate learning theories

3. To maintain high standards and quality in mathematics learning

4. The Mathematics Division ensures the quality, consistency and integrity of our courses:
   - Through regular assessment of our courses and sequences;
   - Through coordination with faculty in the specific programs both within LCC and in transferring institutions;
   - Through standards for hiring mathematics faculty;
   - Via semi-annual meetings with the high school College Now mathematics instructors;
   - With our Scope and Sequence document that guides our curriculum (It is reviewed and updated periodically to meet national standards.);
   - Through the use of common assessments for many of our courses;
   - Through regular interaction between course leads and full and part-time instructors; and
   - Through regular evaluation of all faculty and staff.

5. Hiring qualified instructors
   - 16 full-time contracted faculty (3 Ph.Ds, 13 Masters)
   - 29 – 33 part-time instructors assigned a class session in a term (5 Ph.Ds, 27 Masters)
   - 5 half-time or more (25 to 35 hour positions) MRC Instructional Specialists

Strengths / Weakness in Learning Opportunities in Mathematics

Strengths:

1. Dedicated mathematics faculty members willing to strengthen and contribute to the teaching and learning of mathematics.
   - Creating courses regarding overcoming math and test taking anxieties
   - Creating a Part / Full-Time mentoring program
   - Develop part-time faculty support
   - Developing Math Enrichment seminars
   - Sharing resources with college colleagues
2. Dedicated mathematics faculty member willing to conduct studies on how to improve the teaching and learning of mathematics at LCC
   - Exploring and assessing pedagogical methods, changes, and implementations at sister institutions
   - Conducting a review of and restructure of the developmental curriculum
   - Conducting a study on improvement of student retention
   - Conducting a study on the scheduling / workload problems within the division

Weaknesses:

1. Part-time faculty are teaching substantially more of our courses than contracted full-time faculty. The number of credits sections taught in Mathematics Division were 131 (47.1%) by full-time and 147 (52.9%) by part-time. Part-time faculty are teaching substantially more of our courses than contracted full-time faculty. The Mathematics Division would like to adjust this imbalance

in order to provide more adequate ration of full to part-time faculty and therefore better meet Lane's vision and mission of providing quality-learning opportunities for our students.

2. There is a need for hiring one full-time contracted faculty member with a mathematics / engineering background. This specialized instructor would cross teach mathematics and engineering transfer courses in both the Mathematics and Science Divisions.

3. While answering this first question, the Chapter 4 committee was able to list how we made learning opportunities in mathematics accessible, affordable, and high quality, but we do not have a method in place which allows us to get feedback or assessment on those approaches we are currently utilizing in the Mathematics Division.

   Examples:
   - Need student feedback regarding if what we are instilling is in their best interest
   - No current assessment in action to answer the question if lack of enrollment or the drop-out rates are due to any of the accessibility or affordability of the classes and material

2) How well did students meet your learning outcomes at both the Program Level and Course Level?

Course Level

The course level learning outcomes in the Math Division are clearly spelled out in the course outline for each course. The Math Division assures that its learning outcomes are current and relevant by assigning each course or sequence of courses to a lead instructor who is responsible for the curriculum. Together with a curriculum committee for each course, the lead instructor regularly reviews the learning outcomes. In addition, in the last five years the Math Division has developed a scope and sequence document for the courses from Math 20 to Math 111, which provides continuity and consistency among these course offerings.

For course level outcomes, all instructors give comprehensive final exams to assess how well individual students meet the outcomes. In addition, Math 60/65/70 and Math 111 instructors have given some common final exams during the past few years. The lead instructors for these courses, though, have found it challenging to find the time to do much in the way of data analysis with these data.

Program Level

The Mathematics Division has several goals specifically related to students learning. From the ***Mathematics Division Statement & Goals*** (June 8th, 2000):

Goal 2: To increase the mathematical knowledge and skills of our students needed for making informed decisions in today's world.

Instructors in individual courses assess this knowledge and these skills, but the Math Division has not systematically assessed how we are doing in meeting this goal.

Goal 3: To foster in students an appreciation for mathematics and an appreciation for themselves as mathematics learners.

Instructors in individual courses may assess this goal, but the Math Division has not systematically assessed how we are doing in meeting this goal.

Goal 7: To promote the success of students in they're learning and application of mathematics.

The Math Division requires all students to take a placement test before registering for a math course and enforces prerequisites for its courses. This assures that students are entering our courses at a level where their success is probable. The Math Division provides free tutoring for students in all of our courses in the Math Resource Center and offers workshops to students on math anxiety, test taking, etc. All instructors have weekly office hours for assisting students individually.
Although the Math Division provides a great deal of support to its students in their learning and application of mathematics, the division has not systematically assessed how this support affects student learning.

Strengths	Weaknesses
• Learning outcomes are well-defined	• Assessment of student outcomes
• Program goals are well-defined	• Assessment of program goals

3) How well did students meet Core Ability Outcomes?

What approach did you take to gather evidence of your performance?

1. Communicate effectively.
   - Expectations for activities, projects, and homework assignments emphasize written communication.
   - Collaborative assignments encourage oral communication of ideas.

2. Think critically and solve problems effectively.
   - Group assignments, projects and activities enhance student learning and attach relevance.
   - Interactive "you try it" problems are incorporated to take advantage of teachable moments.
   - The "problem of the week," provides an incentive for students to stretch their skills further.

3. Increase understanding of the relationship between self and community, including self-awareness, personal responsibility, and the development of cultural competence.
   - Students are encouraged to help maintain a respectful learning environment in the classroom.
   - Students are encouraged to take initiative in seeking help from their instructor, a tutor in the Math Resource Center (MRC) or a classmate.
   - There is a Math Division scholarship for which students may apply. They are also encouraged to apply for scholarships outside of the division through postings and in-class announcements.

4. Explore academic disciplines.
   - Activities and projects draw upon the connection between math and other disciplines.
   - The Math Division works in conjunction with other departments to provide the appropriate courses and skills for success.
   - Math counselors help students establish learning and career goals.

- Math/Engineering instructors educate students about engineering opportunities.
- The Engineering Club provides an outlet for interested potential engineers.

What method of assessment did you use?

- Completion rates and success rates for mathematics courses in the years from 2001 to 2004 are on average 80.4% and 75.4%, respectively.
- In 2003, 73.4% of OSU engineering students who took Engineering Orientation and Statics at Lane CC graduated with engineering degrees, and another 13.9% are still attending as engineering majors.
- Instructors for some of our courses meet informally on a regular basis to share successful ways of presenting topics and assigning work to facilitate learning.
- Grading of homework, activities, projects and tests done by individual instructors helps instructors to foster success during the term and to plan future classes.
- Student evaluations provide a glimpse at how well student have reached their Core Ability outcomes.
- Common partial final exams are given in some classes to measure success and consistency of teaching and learning.
- Lane CC math students (current and former) currently comprise about two thirds of the hired tutoring staff in the MRC.

What does the evidence you gathered tell you about your strengths and/or weaknesses in helping students meet Core Ability outcomes in 2003-2004?

- The faculty, tutors, staff and counselors are committed to helping students meet these outcomes.
- The retention and success rates for mathematics students indicate the majority of students taking math courses are succeeding in their efforts.
- The majority of Lane CC engineering students who attend OSU are successful in reaching their educational goals.
- A majority of the hired MRC math tutors are Lane CC math students.
- Other commitments assigned to full-time faculty have limited the extent to which data from common finals has been analyzed.
- Sharing of successful teaching ideas in specific math courses has been limited primarily to Fall In-service meetings, continuing only on an informal basis the rest of the year.

4) <u>How efficiently did you use the resources you were given?</u>

A. Mathematics Computer Lab Equipment Replacement Sci/Math Room 222 (Priority 1)
   - All level course instruction
   - Individual student projects
   - Course Testing

B. Developmental Algebra Study and Review (Priority 4)

In progress

C. LCD Projector and installation for Sci/Math Rooms 202, 206, 208, 210 (Priority 16, 17, 18, 19) Not yet installed due to college delays

5) <u>How well are you utilizing current technology?</u>

From the ***Mathematics Division Statement & Goals*** (June 8th, 2000):

Goal 4: To utilize technology appropriately in presenting mathematical concepts/information and in providing learning opportunities for students.

A. **Facilities**...
2004 has seen a major upgrades in the division. The computer lab acquired 26 computer stations with LCD screens August 2004, and an overhead projector and drop-down screen Winter 2004. All faculty offices about 28 received new computers August through October 2004. Software includes email, Banner access, an Internet browser, and MS Office, but little other software. All faculty have TI-83 calculators and projection capability in classrooms. VCRs and TV screens were installed in four classrooms in 2004. The Math resource center is well equipped, but with an older generation of computers.

B. **Opportunity to use**...The division computer lab is open 8:30 to 5:00 p.m. The MRC computer testing facilities are open 8:30 -3:30 weekdays and 5:20 to 8:30 Tuesday and Wednesday. About 30% of the daytime hours are used for testing, done in one block.
The Nov 17, 2004 division survey (n = 23 of 55) found that the number of individual class sessions held in the lab over one academic year averaged 4.3 for full-time and 0 .6 for part time. The responses ranged from 0 to12 classes for full time and 0 to 5 classes for part-time. Computer lab signup sheets show about 4 one-hour blocks of use per week by classes. We assume at least an equal amount of time in use by students. Testing used about 26 one-hour blocks per two-week period in fall term. Free blocks during the day total about 28. Evening use is not known, but very often available.

Survey summary: opportunity to use tech resources	Full-time (10)			Part-time (13)	
1= disagree 10=agree	ave.	std dev.		ave.	std dev.
1. I am satisfied with the technology hardware resources of the division.	8.3	2.2		7.9	1.7
2. I am satisfied with the software resources I have.	8	2.5		7.3	2.5
4. I have adequate opportunity to use technological facilities.	8.8	1.5		8.1	1.5
6. The programs available in the lab are sufficient for my teaching.	8	2.2		9	1.7

The responses indicate a high level of satisfaction with resources and opportunity to use technological facilities, with part-time somewhat less satisfied than full time. Satisfaction with software resources, though high, is slightly weaker than other categories. Comments show an unmet need for software.

"I am quite satisfied, but it would be great to have computers and projectors in the classroom.
"We have many more resources than I have time to use. What if each lead instructor could come up with one relevant computer lab (flex days for development?) Leads could do workshops on their labs during in-service to prepare instructors to use them in their classes.
"We need a dedicated full time tech support person for the division. Knowledgeable in programming as well as hardware support.
"Electronic class feedback systems for polling the class.
"I want a chance to experiment with classroom "instant feedback."

Some expressed potential threats to use of the computer lab.
"I will need the lab more in spring and am concerned it will already be booked.
"FSA testing and class use may conflict more in the future.
"It is a struggle with the FSA taking up so many days for the whole day."

"We need good graphing math software. We need Adobe writer. Everyone should have a web page connected to his or her name on the math staff page.
"A computer algebra system such as Maple or Mathematica; MathType for math notation and web publishing.
"I would like to have a programming environment that would produce programs for both Mac and PC."

Courses for which technology resources are most relevant was in the November survey:
14. Concerning technology resources and division math courses, list the courses for which, in your experience, the stated resource is useful. Write the course numbers or range following each item. Number of responses in ( ) if there is more than one like that.

- Calculator: all (3) Scientific: all; developmental. Graphing: 111 & up (2).
- Computer: 25,76, 97 211 21 213 54 26 243 & up. Testing 111 & below. Individualized instruction: 111& below. All, but cumbersome for more than occasional use. All.
- Internet: 25 211 212 213 26 54 All (2) All if research and communication applications are considered.
  All my classes use links or my web page to see grades. Three course use other web sites.
- Video: 52 97 211 212 213. 111 & below. Very useful in MRC. All, but computer supercedes in interactivity. There are classes in which video is useful, but not worth the effort.
  I use the video Platonic Solids. Video would be valuable in other courses if time allowed-but class time is too valuable to give up 30-50 minutes to videos. I assume this question does not mean MRC videos.
  Some students report that the MRC videos are useful.
- Other (name & courses): web pages for links and discussions 52, 211, 212, 213.

C. Goals for each course...
Computing goals for each course were set in about 2000, but have not been brought up to date.

D. Stay knowledgeable... and E. Be aware of math related technology as used...

The November survey assessed the faculty self-perception on technological knowledge.

	Full-time (10)			Part-time (13)	
Summary 10=agree 1= disagree	ave.	std dev.		ave.	std dev.
10. I am well informed on the uses of calculators in courses at the levels I teach.	8.9	1		9.5	0.7
11. I am well informed on the uses of computers in courses at the levels I teach.	7.1	2.5		6.5	4.1
12. I am well informed on the uses of video in courses at the levels I teach.	6.9	2.5		7.6	2.6
13. I am well informed on the uses of the internet in courses at the levels I teach.	6.6	2.4		6.3	2.7

Faculty are well informed on the uses of calculators, but substantially less informed on computers, video, and Internet.

F. Communicate choices...

The faculty communicates calculator use above all other uses. The level may be judged by the survey responses.

G. Faculty model use...

The faculty models calculator use above all other uses. The level may be judged by the survey responses.

H. Stay aware of limitations...

This goal may be measured by the responses to D, above.

Two comments related to staying aware of the limitations of technology.

"The placement tests may not be sufficient for the technical math courses, even though they may be for the algebra courses.

"I think we need to do something to make it easy for instructors to do technology professional development."

7) How well did you meet faculty and staff goals?

The Mathematics Division created goals during the academic year 1999-2000. The goals that were developed follow below:

Goal 1: To make content in mathematics courses pertinent, coordinated, and up-to-date.

- Course leaders insure that the content of our mathematics courses is pertinent, coordinated, and up-to-date.
- Efforts have been made to coordinate Mathematics Division courses with Lane Community College programs, which require mathematics for graduation or as prerequisites. Cathy and Robert teach pre-engineering courses at LCC and coordinate with that program. Karen Louise White is teaching a linked Mathematics/Culinary Arts Program course (Mth 25).
- Our Division Chair and our course leaders coordinate with other community colleges and universities in Oregon as it is possible and practical. Our Division Chair meets annually with other community college math chairs from around the state at the statewide ORMATYC meeting.

- A scope and sequence document has been developed by our division which flow charts the content of most of our mathematics courses.

Goal 2: To increase the mathematical knowledge and skills of our students needed for making informed decisions in today's world.

For a response to this goal see question 2.

Goal 3: To foster in students an appreciation for mathematics, and an appreciation for themselves as mathematics learners.

For a response to this goal see question 2.

Goal 4: To utilize technology appropriately in presenting mathematical concepts/information and in providing learning opportunities for students.

For a response to this goal see question 5.

Goal 5: To use effective teaching strategies and apply appropriate learning theories.

The LCC Mathematics Division does the following:

A. Provides resources and guidelines for faculty who are teaching a course for the first time.
   1. Course syllabi and course outlines are on file in the math office.
   2. Course coordinators give orientations and sample materials.
   3. There is a drawer in the workroom with activities and handouts that have worked for other instructors.
   4. Books and supplies are provided by the math office.
   5. Faculty are encouraged to observe each other teach as a means of gaining new ideas.

B. Provides meetings for faculty to discuss teaching methods and emphases for particular courses.
   1. Each course coordinator is responsible for calling their committee and course instructors together for discussions of methods and emphases on course content.
   2. Instructors who find something that works in their class(es) are encouraged to share it with the entire division.

C. Encourages all division faculty to keep current with new learning theories and methods of delivery.
   1. All faculty are encouraged to maintain membership(s) in some major professional organization(s). (e.g.: NCTM, ORMATYC, AMATYC, MAA, and OCTM)
   2. All faculty are encouraged to read the latest journals pertaining to the courses they are teaching. Many of these are routed and then kept in the division lunchroom.
   3. All faculty are encouraged to keep current with the technological advances pertaining to their courses (computers, calculators, etc.).

4. All faculty are encouraged to apply for funds to attend conferences, etc., awarded by the Faculty Professional Development Short-term Leave Committee (see Penny Deggelman).
5. All instructors attending conferences, workshops, etc., are encouraged to present the faculty with the knowledge of the newest techniques and methods learned.

D. Encourages and supports innovations and experimentation. Faculty are encouraged to apply for funding through grants to support new courses and other innovations.

E. Provides students with a variety of methods/ways to succeed in their learning.
1. Faculty are encouraged to provide auditory, visual, and kinesthetic means for their students to learn.
2. Different means of learning and assessment include but are not be limited to the following:
   a. note-taking
   b. homework
   c. other written work by students
   d. reviews
   e. tests and quizzes
   f. computer labs
   g. portfolios
   h. self-evaluation methods
   i. group work
   j. presentations
   k. poster projects, other projects

Goal 6: To maintain high standards and quality in mathematics learning.

A. Standards are set for content, pedagogy, and student intellectual development for each course in line with national standards.

B. The division chair meets with Oregon college and university math instructors regularly at events such as ORMATYC to ensure that our courses articulate well within the state.

C. Some of our courses include exams that assess student mastery of skills, e.g. the FSA algebra courses, Mth 251, Mth 252.

D. Common final exams are administered within our Mth 60, 65, 70, and 111 courses.

G. Communication between instructors is encouraged in the form of regularly scheduled division meetings and division colloquia.

Goal 7: To promote the success of students in their learning and application of mathematics.

For a response to this goal see question 2.

Goal 8: To be responsive to student, program, employer, and community needs in the provision of mathematics learning opportunities, and to regularly assess these needs.

The LCC Mathematics Division:

A. Supports life-long learning.

B. Has "College High" offerings for Mth 105, 106, 111, 112, 251, and 252.
C. Offers a wide range of courses allowing for entry at various levels from arithmetic and other developmental mathematics, professional technical mathematics, and through lower division transfer courses.
D. Offers courses over a wide range of times.
E. Offers flexible scheduling when it is practical, when good learning occurs, and when students are likely to be successful (e.g., MRC, web-based courses, topic "modules" in our FSA courses).
F. Offers courses in a variety of locations (e.g., main campus, outreach, virtual, business sites).
G. Provides a variety of learning environments to accommodate different learning styles, as practical (e.g., classroom lecture, classroom group activities and labs, independent study).

Goal 9: To assess the success of the Mathematics Division in achieving its goals and to use the results of the assessments to make improvements in the Mathematics Division.

The LCC Mathematics Division plans to:

A. Develop means by which to assess the success of the Mathematics Division in achieving each of its stated goals.
B. Develop a process by which the results of these assessments can be used to make improvements in the Mathematics Division.

8) Review your initiatives from 2003 – 2004

Refer to Question 4 regarding which initiatives were granted.

Challenges: Priority of each initiative is not consistent between what the division requests, and what the determining committee grants. Someone makes a decision about each initiative, but how are priorities determined? Who gets to determine the priorities?

9) Overall, what strengths do you believe your unit demonstrated in 2003-2004?

- Placement of students
- Division chair's organization and positive energy
- Faculty committed to student success
- Teaching consistency between sections of courses and within sequences of courses due to clearly spelled out course objectives and scope and sequence documents
- Course level committees that focus on curriculum, instruction and assessment for each of our courses
- Integrating technology in the classroom
- Providing tutoring support to students through the Math Resource Center
- Collaborative culture within our division that fosters sharing of ideas and materials
- Camaraderie within the division (potlucks, etc.)
- Connections with the community (College Now and the Math Skills Fair)
- Math Colloquia to give faculty an opportunity to share ideas

- Modern facilities
- Instructor evaluation process (collaborative and focused on improvement)
- Excellent support staff

10) Overall, what challenges do you believe your unit faced in 2003-2004?

- Not enough full-time faculty to do the work of the division
- Difficulty in undertaking systematic assessment of student learning and of division goals due to the heavy workload already resting on the full-time faculty
- Difficulty in undertaking new curriculum development projects – again due to full-time faculty workload
- Difficulty in implementing national standards for math education in our courses due to inadequate time for curriculum review/development
- Difficulty in finding qualified part time faculty to cover the large number of sections taught by part time faculty
- Difficulty in getting part time faculty involved in division committees and seminars due to lack of funding to support their involvement
- Student retention – could we do better?
- Lack of mechanisms for data collection
- Difficulty in finding substitutes to cover classes
- Lack of funding for professional development
- Giving evening students comparable support

11) What conclusions do you draw from this analysis about needed improvements or changes in 2004-2005?

- The division needs more full-time faculty to adequately do the work of the division.
- The division needs funding for faculty release time to undertake systematic assessment of student learning and Math Division goals, including student retention.
- The division needs continuing funding for curriculum development projects.
- The division needs more funding for professional development.
- The division needs funding to support part-time involvement on division committees and participation in Math Division colloquia.
- The division needs funding for more evening and weekend open hours at the MRC to support evening students.

Part IV. Projected Performance 2004-2005

Chapter 4: Mathematics Division Initiatives 2004-2005

These initiatives will assist the Mathematics Division in articulating the College's vision of providing learning opportunities for our students to transform their lives. These initiatives will further enable the Mathematics Division to align with the College's Mission of providing quality educational opportunities for our students. These initiatives support Lane's Core Values by enabling the Mathematics Division to provide an environment that respects the needs and potential of each student through fairness, honesty, and openness.

These initiatives, ***beginning on the next page***, will enable the Mathematics Division to:

- Cultivate respectful, inclusive, and accessible learning environments;
- Respond to demographic changes and internal challenges;
- Consistently and effectively respond to the challenges of a changing technological community and workplace;
- Remove barriers to learning for our students;
- Improve and strengthen our students' quantitative literacy;
- Address specific challenges identified in Chapter 3.

Mathematics Division **Priority #1**

1. Initiative Title

Improve Capacity for Assessment, Curriculum Development, and Implementation of Standards, and Address Difficulty in Finding Qualified Part-Time Faculty and Substitutes by adding Full-Time Faculty

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Not enough full-time faculty to do the work of the division;
- Difficulty in undertaking systematic assessment of student learning and of division goals due to the heavy workload already resting on the full-time faculty;
- Difficulty in undertaking new curriculum development projects, again due to inadequate time for curriculum review/development;
- Difficulty in finding qualified part-time faculty to cover the large number of sections taught by part-time faculty.

The initiative will address these challenges by **increasing the number of full-time faculty in the division** and improving our full-time to part-time ratio.

3. Describe the initiative

As discussed in Chapter 3, Mathematics Division goals for program assessment, curriculum development, and implementation of national standards (such as those published by AMATYC and NCTM) will be difficult or impossible to successfully achieve without more full-time faculty. As our full to part-time instructor ratio decreases, large numbers of day and evenings courses taught by part-time instructors create increasing needs for instructional leadership, curriculum development, and various administrative duties, while there are relatively fewer full-time instructors to do this work.

Currently, not counting release for grant and other leaves, there are 15 FTE contracted full-time faculty (16 with the MRC Director who teaches only for the Science Division engineering transfer courses). This last year the Division served over 960 student FTE [From IRAP (September 2004) Enrollment Reports]. We are one of the three largest divisions at Lane Community College. Factoring in releases for grant and other leaves, the contracted full-time faculty FTE was reduced to 13.8 FTE full-time contracted faculty Spring 2004 in our division teaching courses. This Fall and Winter there are 14 FTE full-time faculty teaching math and pre-engineering courses.

If Cooperative Ed FTE is included (see page 3 of the 2002-03 IRAP Enrollment Report—last full report) we are the second largest division in 02/03 with 1062 FTE. Yet the number of full-time contracted faculty in our division is substantially less (15) than in similar producing FTE divisions. The Social Science Division produced 1142 student FTE (see page 3 of the above report) with 23 full-time contracted faculty, English, Foreign Language and Speech produced 1034 student FTE

(see page 3 of the above report) with 28 full-time contracted faculty, and Science produced 1045 student FTE (see page 3 of the above report) with 17 full-time contracted faculty.
Our actual head count part-time to full-time ratio is approximately 2 to 1. In the last comparator study: for P'03 there were 30 part-time faculty to 15 (only 13.8 were not on release) full-time contracted faculty; F'03 it was 32 to 14.8, W'04 it is 29 to13.8. If you compare the number of credit sections taught by full-time faculty to part-time faculty it is full-time faculty teaching (P'03+F'03+W'04: 45+45+41) 131 sections and part-time faculty teaching (P'03+F'03+W'04: 35+59+53) 147 sections. For this period, **full-time faculty** taught **47.1**% of all math course s while **part-time faculty** taught **52.9%** (these numbers do not include the 28 sections of MRC classes offered each term—independent study). The conclusion to be drawn is that part-time faculty are teaching substantially more of our courses than contracted full-time faculty.

All Mathematics Division students will benefit from additional full-time faculty, not only through improved access to instruction, but also because the mathematics curriculum will be improved and the division will be better able to achieve its goals.

4. Describe the resources needed

- **Mathematics Instructor** (1.0 FTE contracted faculty. Payroll with OPE is $72,591, at Level 2 Step 6);
- **Mathematics/Engineering Instructor** (1.0 FTE contracted faculty. Payroll with OPE is $72,591 at Level 2 Step 6).

5. List the possible funding sources

General Fund (recurring).
This initiative could be partially funded (one new instructor) at a minimum annual cost of $72,591.

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

Additional full-time contracted faculty are the mathematics highest need for providing improved assessment, and curriculum development in support of Lane's vision and mission of providing quality educational opportunities.

Mathematics Division **Priority #2**

1. Initiative Title

Improve Student Retention and Improve Capacity for Data Gathering and Assessment through increased Technical Support and Tutoring

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Student retention;
- Creating an accessible learning environment;
- Removing barriers to learning for students;
- Lack of mechanisms for data collection;
- Giving evening students comparable support.

The initiative will address these challenges by improving tutorial and computer lab open hours and staffing levels, and by providing support staff to collect and manage data for program assessment.

3. Describe the initiative

Drop-in tutoring in the Math Resource Center is among our best mechanisms for promoting student learning and increasing student retention. However, limited staffing creates long lines of students waiting to see tutors during the MRC's busiest hours, and limits the MRC's ability to serve transfer level students and, especially, students in evening classes.

Sometimes 5 or 6 students at a time are waiting up to 15 or 20 minutes for tutoring assistance. The demand adds to students' frustration and creates a significant stress level for contracted staff. The Division is concerned that we might lose talented and experienced tutors due to burnout.

We are open 40 hours per week, but we have only one 25 hour per week testing specialist (service counter person), and only 5 tutors, two of whom work 25 hours per week (including summer term) and three who work 30 hours per week (and do not work summer term). They are classified as instructional support specialists and work in room 163 that serves developmental math students. We are also allocated about 20 hours per week from Division ICP funds for timesheet staffing and tech support.

At the service counter our aide handles make-up lecture class testing and MRC testing intake (40-98 tests per day), check-in/out videos on all math topics, and the MRC Director handles enrollment clearing and advising. Frequently there are several students waiting for assistance. The MRC Director spends a significant portion of each day assisting our aide at the counter.

In our developmental math tutoring room, #163, we average over 700 student contacts per week.

In room 177 we provide tutoring for transfer level math students (Math 105-256). One faculty position staffs this room from 9am to 3pm daily. These positions are part of 6 full time faculty's workload. Tutoring Services and Learn & Earn tutors help in this room. They provide 50 to 60 hours per week and 28 to 32 hours of tutor time per week, respectively. Their schedules provide coverage from 8am until 7pm. Frequently there are 3 or 4 students waiting for assistance.

This initiative seeks to **add two 25 hours per week Instructional Support Specialist positions**. This increase in staffing would lessen student waiting time, offer some flexibility to tutors for breaks, and would allow for a tutor to assist the aide at the service counter during peak demand.

As discussed in Chapter 3, the Mathematics Computer Lab is open 8:30 to 5:00 p.m. with mixed use for testing, classes, and individual students. We would not be able to utilize the lab to this extent without the help of our classified technical administrative support person, Siv Barnum, whose position is supported by minimal department funds and a FIPSE grant (for Flexible Sequence Algebra) that will expire in Summer 2006. So this initiative also seeks to add one 1.0 FTE technical support position. If the College funded a technical support position before Summer 2006, grant funds could be reassigned to expand lab hours or for other division needs related to executing the grant.

The technical support person's responsibilities include opening and closing the lab, lab security and maintenance, keeping software and equipment organized and up-to-date, helping instructors and students use the lab, troubleshooting equipment and software problems, and coordinating with the faculty lab supervisor.

All Mathematics Division students will benefit from additional tutorial or technical support staff, particularly evening students.

4. Describe the resources needed

- Two 0.5 FTE Instructional Support Specialists, (both @ Level 8 Step 4 with OPE) $40,785;
- One 1.0 FTE Tech Support Person, $44,699.

5. List the possible funding sources

General Fund (recurring).

[Or TACT funding for equivalent time sheet dollars **(**'06/'07**)** (non-recurring) if General Fund dollars not available.] Note: will be requested each year from TACT funds.

IF TACT Funds (Note: Begin date is 9/1/2006)

Category of request:
Maintain existing and/or supporting technology.

How does this request fit in with other unit or college technology plans?

An integral part of the College and the Mathematics Division mission is to provide adequate staffing support wherever computer technology is used. Developmental, Professional-Technical, and Lower Division College Transfer courses are scheduled in this room throughout the year. The room is also used as a drop-in mathematics open computer lab for students with assistance provided.

Cost breakdown, including any unit resources being applied to project:
Mathematics Division requests from TACT two (2) less than 1040 time sheet hour amounts (at the Instructional Support Specialist level 8 step 4, currently is $14.05 /hr.) not to exceed $40,758.

$14.05 * 1039 *1.396 = $20,378.74
$14.05 * 1039 *1.396 = $20,378.74
Totals = $40,757.48

This initiative could be partially funded at a minimum annual cost (for one ISS) of $20,393.

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

Additional classified instructional and technical support staff will help the Mathematics Division better address Lane's core values of *learning* and *accessibility*.

Mathematics Division **Priority #3**

1. Initiative Title

Involve Part-Time Instructors by Compensating for Committee Work

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Difficulty in getting part-time faculty involved in division committees and seminars;
- Not enough full-time faculty to do the work of the division.

The initiative will address these challenges by compensating part-time instructors for sharing the work of assessment and curriculum development usually done by full-time instructors.

3. Describe the initiative

As described in Chapter 3, the main barrier to achievement of Math Division goals in the area of assessment, curriculum development, and bringing our programs into alignment with national standards is a lack of full-time instructors. We think the best response is to add full-time faculty, but another approach (alternative or supplemental) is to involve more part-time instructors in this work. Among the Division's part-time faculty are some Ph.D's, some with special expertise in mathematics education and curriculum development, some with extensive knowledge of the Division and the College, and many with talents for leadership and teamwork. This initiative seeks to utilize this untapped resource in order to address Division challenges.

4. Describe the resources needed

- Annual funding to pay part-time instructors for meetings and other committee work. 200 hours = 200*26.44*1.396 = **$7,383.**

5. List the possible funding sources

General Fund (recurring).
This initiative could be partially funded at $7,383/2 = **$3,692** (for 100 hours).

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

Greater involvement of part-time instructors will help us achieve our assessment and curriculum development goals in support of Lane's vision and mission of providing quality educational opportunities.

Mathematics Division **Priority #4**

1. Initiative Title

Improve Capacity for Program Assessment and Curriculum Development, and Address Student Retention, Needs of Evening Students, Professional Development, Etc. with Release Time

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Not enough full-time faculty to do the work of the division.
- Difficulty in undertaking systematic assessment of student learning and of division goals due to the heavy workload already resting on the full-time faculty;
- Difficulty in undertaking new curriculum development projects, again due to inadequate time for curriculum review/development;
- Student retention;
- Lack of mechanisms for data collection;
- Lack of funding for professional development;
- Giving evening students comparable support.

The initiative will address these challenges by creating release time for full-time faculty to work on Division goals.

3. Describe the initiative

As described in Chapter 3, the main barrier to achievement of Math Division goals in assessment, curriculum development, and bringing our programs into alignment with national standards is a lack of full-time instructors. We think the best response is to add full-time faculty (as proposed in Initiative 1 above), and that involving more part-time instructors (as proposed in Initiative 3) could also help. A third approach would be to provide **release time** for some full-time instructors so they can handle more non-direct instructional work.

Several instructors and groups of instructors have identified projects they would be eager to tackle if given release time. We think the best way to facilitate this work is to establish a rotating single course (4-credit) release per term (excluding Summer), to be assigned to full-time faculty on a volunteer or rotating basis, allowing them to take on extra non-direct instructional work. An alternative would be to fund release time backfill for individual projects, prioritized as #1 - #6 below.

1. Mentor and support part-time instructors. Establish an on-going full-time/part-time mentoring structure by which each full-time instructor will ensure that his/her part-time instructor group is adequately informed about division procedures, and about resources available to optimize students' success. Possibly assign special responsibilities for supporting part-time instructors to one (rotating) full-time instructor, who would gather materials that are new, updated, and of interest to include in the Faculty Handbook for Full and Part Time Faculty, prepare for in-service meetings with part time faculty, show and guide part-time faculty through copier procedures, mailroom, supply area, paper area, manipulatives, who to get books and calculators from, etc., and answer or

any questions or concerns from part-time faculty throughout the year. Note: The Mathematics Division utilizes the services of 42 to 50 part-time faculty each year.

2. Establish and maintain an on-going instructors' forum ("colloquium" or "math enrichment seminar") for improving teaching and learning in the Mathematics Division and (in some cases) across campus. Schedule and promote open meetings to discuss math pedagogy, national standards for math education, instructional resources, etc.

3. Student retention. A team of full-time/part-time instructors will research and study the factors contributing to student retention in the current learning environment and make recommendations for improvement to the Division.

4. Math anxiety course. Develop and teach a two-week (could be 10 sessions) course on overcoming math and test taking anxieties. This could be a "summer institute" or a pre-fall term class to help students get a jump-start on the academic year.

5. Study breadth and depth of offerings as these relate to teaching philosophy and choice of texts. A team of full-time/part-time instructors will research the breadth and depth of offerings at other community colleges (inside and outside Oregon) and prepare a comparative report for the division.

4. Describe the resources needed

- Annual 12-credit (3 x 4-credit) release backfill for division work. $12,699 for three-4 credit release backfills (one each for Fall, Winter, and Spring).

~ OR INDIVIDUAL PROJECTS ~

1. Annual 4-credit release backfill for work on full-time/part-time mentoring and part-time faculty
   support. Recurring **$4,233** for a 4-credit release backfill.
2. Annual 1-credit release backfill for coordinating math "colloquium" or "enrichment seminars". Recurring **$1,059**.
3. One time 4-credit release backfill for work on student retention. Non-recurring **$4,233**.
4. 20 hours curriculum development to develop a 1-credit math anxiety course. Non-recurring cost of
   20 hours CD = 20*26.44*1.396 = **$738**.
5. One time 1-credit release backfill for work on breadth and depth, text, ideology. Non-recurring **$1,059**.

5. List the possible funding sources

General Fund (recurring or non-recurring).
Curriculum Development (non-recurring) [for project #4 only].

This initiative could be partially funded by choosing projects from the numbered list (arranged by priority) at a minimum one-time cost of $738 (Priority #4 from list above).

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

   Greater involvement of part-time instructors will help us achieve our assessment and curriculum development goals in support of Lane's vision and mission of providing quality educational opportunities.

Mathematics Division **Priority #5**

1. Initiative Title

Study Procedures and Pedagogy at Sister Institutions and Improve Student Retention and Learning by Curriculum Development

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Difficulty in implementing national standards for math education in our courses due to inadequate time for curriculum development;
- Student retention.

The initiative will address these challenges by funding a study of other math departments and on related curriculum development.

3. Describe the initiative

We would like to complete an **aggressive study on how mathematics is taught at other similar schools**. What is their class structure? What delivery methods and modes of instruction do they utilize? What kinds of procedures do they have in place to ensure student success and effective learning environments for their students? We want to explore and assess pedagogical methods that may be adopted or adapted to improve and update Lane's mathematics curriculum.

This study would be done locally, statewide, regionally, and nation-wide, tapping colleagues through regional and national organizations such as ORMATYC, AMATYC, NCTM, and MAA.

4. Describe the resources needed

- 100 hours = $26.44*100*1.396 = **$3,692** in curriculum development funds

5. List the possible funding sources

Curriculum Development (non-recurring).

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

This initiative will help the Mathematics Division promote Lane's core values of *learning* and *accessibility*.

Mathematics Division **Priority #6**

1. Initiative Title

Improve Student Learning and Retention by Upgrading Classroom Technology

2. How is the initiative linked to your Program Outcomes Analysis for 2003-2004?

This addresses challenges identified in Chapter 3, including:

- Student retention;
- Difficulty in implementing national standards for math education.

The initiative will address these challenges by enhancing the quality and variety of instructional delivery, thus improving the learning environment for students.

3. Describe the initiative

National standards for mathematics education urge us to teach mathematics using multimedia and interactive instructional technologies.

A draft manuscript of AMATYC's forthcoming standards document, *Beyond Crossroads: Implementing Mathematics Standards in the First Two Years of College*, recommends that "Departments will…choose technological tools primarily for their pedagogical value…provide technology with options for interactivity between students and faculty supporting classroom activities and student learning of mathematics…provide appropriate technology for students to learn mathematics and faculty to teach mathematics courses" (page 23, draft 6.0).

Increasingly, Lane math instructors use computer and Internet based demonstrations and visual aids in teaching mathematics and in teaching technology skills that support mathematics learning. A limited number of portable projectors have been used for this practice, but in order to facilitate its practical implementation among a greater number of instructors on a more regular basis it is necessary to provide fixed multimedia projectors in each of our classrooms.

The cost of LCD projectors and installation were funded for four of our classrooms in the previous budget cycle. Now we are requesting funding for remaining classrooms, in priority order.

4. Describe the resources needed

1. LCD projector and installation, building 16 room 213, $6,000;
2. LCD projector and installation, building 16 room 219, $6,000;
3. LCD projector and installation, building 16 room 226, $6,000;
4. LCD projector and installation, building 16 room 257, $6,000;
5. LCD projector and installation, building 16 room 271, $6,000;
6. LCD projector and installation, building 16 room 184, $6,000;
7. LCD projector and installation, building 16 room 186, $6,000.

5. List the possible funding sources

TACT funds (non-recurring).

TACT Funds

Category of request:

Increase student access to technology.

How does this request fit in with other unit or college technology plans?

The Mathematics Division strives to develop an accessible learning environment for current and future students. We are systematically responding to change in technology by providing equipment in a timely fashion. We are minimizing barriers to learning by integrating appropriate technology into our courses. We *place students at the heart of what we do,* by having *current* equipment available for student learning, while minimizing the cost. We *mainstream innovation*, by replacing current equipment regularly and continually being open to new technology.

Cost breakdown, including any unit resources being applied to project:

SCIE/MATH Room **213**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **219**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **226**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **257**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **271**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **184**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		
SCIE/MATH Room **186**:	LCD Projector	= $4,500	
		Installation Costs	= $1,500 (per Dennis Mills)
Totals	= $6,000		

6. Org & Prog codes

Math Org: 681001
Math Prog: 111100

7. How does this project articulate with the college's vision, mission & goals and contribute toward meeting the President's/Board's approved goals?

This initiative will help the Mathematics Division promote Lane's core values of *learning*, *innovation*, and *accessibility*.

Chapter 5: Expected Unit/Program Outcomes for 2004-2005

1) <u>What unit level outcomes do you expect to achieve?</u>

What goals do you wish to set for 2004-2005? How will your program grow, change or adapt? How will you address the need to meet program accreditation standards or national standards if applicable?

Goal 5.1.1. Improve student retention and student learning
- Gather and analyze data to identify sources of retention and learning problems
- Increase technical support for data collection and analysis
- Improve classroom technology (see Goal 5.3.4 and 5.9.1)
- Increase tutoring
- Offer math anxiety workshops
- Identify and address needs of evening students
- Develop curriculum: Update structure and pedagogy of courses
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload
- Compensate part-time faculty for committee work, professional development, and meetings, so part-time faculty can help with workload

Goal 5.1.2. Improve capacity for data gathering
- Increase technical support for data collection
- Purchase equipment, if needed, for data collection
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload

Goal 5.1.3. Improve unit assessment
- Gather and analyze data to assess unit performance
- Increase technical support for data analysis
- Purchase or design software if needed for data analysis
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload
- Compensate part-time faculty for committee work, professional development, and meetings, so part-time faculty can help with workload

Goal 5.1.4. Improve instructor capacity to work on student retention, assessment, and learning
- Improve classroom technology (see Goal 5.3.4)
- Develop curriculum: Update structure and pedagogy of courses
- Develop curriculum: Work on breadth, depth, text and ideology
- Professional Development: Plan and attend mathematics colloquia (in-house sharing times)
- Professional Development: Organize and attend math enrichment seminars (offered by people outside the Lane Mathematics Division
- Address math anxiety course needs
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload
- Increase Materials and Supplies funds to adequately reflect our spending patterns

Goal 5.1.5. Improve faculty involvement
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload

- Compensate part-time faculty for committee work, professional development, and meetings, so part-time faculty can help with workload

2) How will your program enhance your students' abilities to meet Core Abilities outcomes?
What changes, if any, do you expect to implement in 2004-2005?

We feel that what we are doing currently is satisfactory.

3) What course level outcomes do you expect to achieve?
What goals do you wish to set for 2004-2005? How will your courses grow, change or adapt? How will your instructional methods change or adapt? What goals do you have for your instructional environment (classrooms and/or technologies and equipment)?

Goal 5.3.1. Improve student retention and student learning
- Gather and analyze data to identify sources of retention and learning problems
- Increase technical support for data collection and analysis
- Improve classroom technology (see Goal 5.3.4 and 5.9.1)
- Increase tutoring
- Offer math anxiety workshops
- Identify and address needs of evening students
- Develop curriculum: Update structure and pedagogy of courses
- Develop curriculum: Work on breadth, depth, text and ideology
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload
- Compensate part-time faculty for committee work, professional development, and meetings, so part-time faculty can help with workload
- Increase Materials and Supplies funds to adequately reflect our spending patterns

Goal 5.3.2. Increase instructor capacity to use last-minute creativity for classroom teaching enhancement and capacity to respond to student needs not knowable in advance
- Increase Materials and Supplies funds to adequately reflect our spending patterns
- Research alternatives to non P&G copying (see Goal 5.4.2)

Goal 5.3.3. Support instructional methods that include handouts and manipulatives as pedagogical tools
- Increase Materials and Supplies funds to adequately reflect our spending patterns
- Research alternatives to non P&G copying (see Goal 5.4.2)

Goal 5.3.4. Improve technology in the classroom
- Update projectors
- Upgrade computer lab
- Also see goals for 5.4, below

Goal 5.3.5. Improve curriculum assessment
- Gather and analyze data to assess curriculum
- Increase technical support for data collection and analysis
- Procure funding for release time so full-time faculty can do this work
- Increase number of full-time faculty to appropriately handle the workload
- Compensate part-time faculty for committee work, professional development, and meetings, so part-time faculty can help with workload

4) What plans do you have for enhancing your use of current technologies?

Goal 5.4.1. Increase technical support and tutoring
- Create a permanent full-time technical support position
- Create two additional Instructional Support Specialist half-time positions
- Procure funding for release time so faculty can develop these positions

Goal 5.4.2. Improve student learning
- Upgrade classroom technology
- Upgrade computer lab
- Procure funding for release time so faculty can research interactive technologies
- Create instructor web pages
- Procure funding for release time so faculty can do this work
- Research alternatives to non P&G copying
    - ° Risograph
    - ° Scanner
    - ° Additional laser printers
    - ° Other

5) What plans do you have for working more effectively with your Advisory Committee?

Programs have Advisory Committees, and the Math Division is not a program, so this question does not apply to us.

6) How will you set faculty and staff goals?
How will you ensure the participation of faculty and staff in all phases of Unit Planning?

Goal 5.6.1. Develop a list of Math Division Goals
- This has already been done, to a large extent
- Add a goal to our existing list of Division Goals: "Involve more faculty in decision making"

Goal 5.6.2. Involve full-time faculty in all phases of Unit Planning
- Faculty will divide into teams to develop the chapters
- Increase number of full-time faculty to handle the workload
- Procure funding for release time so faculty can do this work

Goal 5.6.3. Involve all staff (not just full-time faculty) in all phases of Unit Planning
- There are already part-time faculty and classified staff working on our Unit Planning
- Procure funding for compensation of part-time faculty for Unit Planning work

7) Enrollment Data
Please provide your projected goals for 2004-2005:

Program level: Student FTE: ***961***
Course Level: Student FTE ***(spreadsheet available)***
Student FTE/Faculty FTE ratios ***N/A***
Capacity

	Summer 03	Fall 03	Winter 04	Spring 04	Year Total
	84.0%	**93.1%**	**88.1%**	**85.2%**	**88.6%**

Analysis

Unless something unforeseen happens, we expect enrollment patterns similar to those of last year.

8) Student Success Data

Please provide your projected goals for 2004-2005:

Student Completion ratios
Degrees, Certificates Awarded

Not relevant for the Mathematics Division. The question has to do with program completion, not course completion.

9) Facilities and Equipment

What facilities or equipment goals do you wish to set for 2004-2005?

Goal 5.9.1. Improve technology in the classroom
- Install LCD projectors in various classrooms
- Procure release time to implement changes

Goal 5.9.2. Improve technology in the computer lab
- Upgrade computer lab
- Purchase and install equipment to create floppy disk access for computers

10) Budget

Please provide projected goals for 2004-2005:

- **General Fund**:
  - General Fund Allocation $1,754,681
  - Actual Cost of Operation $1,794,885
  - Revenues $40,212
  - Student 03-04 FTE 961
  - Cost per Student FTE $1,868

- **Restricted Fund 9**:
  - Tuition (less bad debt) $660,124
  - Actual Cost of Operation $457,487
  - Revenue Over $202,637
  - M&S (to budget) $9,100
  - 50% to PT budget $96,769

  (Note: this is a potential. Only what is necessary to cover part-time faculty overages actually goes to our budget—the remainder is returned to college general fund)

- **FIPSE Grant** (3 year $400,000 grant to develop and implement a modularized intermediate algebra course)

Goal 5.10.1. Increase Materials and Supplies Funds to adequately reflect our spending patterns
- Explore increased return of student fees to the division

Goal 5.10.1. Increase funding support to allow for last minute creativity for classroom teaching enhancement and to allow faculty to respond to student needs not realized in advance (see Goal 5.4.2)