

How to Succeed in MATH...

Welcome to Cabrillo College! Soon you'll be taking your first Math class with us. This booklet can help you get into the course that is "right" for you and help you succeed, even if you don't think you are "good at Math." It's written for you and not as dull as you might think. Here's what's inside...

- ❖ **Chapter 1... How to Pick Your First Math Course:
The Assessment Process**
- ❖ **Chapter 2 ... How to Pass Your Math Course:
Survival Skills and Study Habits**
- ❖ **Chapter 3 ... The Math Sequence at Cabrillo:
What's My Next Course?**
- ❖ **Chapter 4 ... Descriptions of Non-Transferable Math Courses:
Math 100-299.**
- ❖ **Chapter 5 ... Descriptions of Transferable Math Courses:
Math 1-99.**

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CHAPTER 1

HOW TO PICK YOUR FIRST MATH COURSE: THE ASSESSMENT PROCESS

You are planning to take your very first Math course at Cabrillo College... this chapter can help you get into the course that is “right” for you. That is, if you follow the advice in this chapter...

- ❖ **You won’t enroll in (and pay for) a course that you don’t need.**
- ❖ **You won’t get in “over your head” and have to repeat the course (and have to pay for it twice).**
- ❖ **You won’t “shoot yourself in the foot” and flunk because you didn’t “know the ropes.”**

Getting into the “wrong” course is a waste of both time and money, two things which none of us can really spare. So we want you to get into the best course for you. That’s what this booklet is for. So let’s try to figure out exactly what you need to do...

There are a lot of things that can make the difference between your passing or failing a Math course: your attitude, your determination, your ability to work with others, your language skills and of course, how much math you can do the day you walk through the door for the first time. Let’s talk about that last one **first...**

1) What Kind Of Math Skills Do I Currently Have?—

Assessment is one of the first steps in Cabrillo's Student Success program. The assessment process evaluates your basic skills in Math, English, and Reading to help you select your classes wisely. You choose one of two possible math tests. After assessment you schedule an orientation where counselors introduce you to our campus procedures and help you develop an education plan. Allow about two hours for the complete assessment.

Contact Information:

Aptos Campus Assessment Center Phone: 479 - 6165
Aptos Campus Assessment Center E-mail: josantan@cabrillo.edu
Watsonville Center Assessment Center Phone: 477 - 5100.

2) Steps To Begin Your Cabrillo College Education

- Turn in an application for admission at the Admissions and Records Office at least three days before you plan to be assessed.
- Call 479 - 6165 for current assessment and orientation dates and times.
- Send your high school or other transcripts to the Counseling Office. If you are using classes from another college to fulfill prerequisite requirements at Cabrillo, you must provide transcripts and/or course placement documentation from the other college. You should confirm with Counseling that this information has been entered into your records at Cabrillo before you register.
- Complete the assessment and orientation process, which includes testing and counseling.
- Register for classes.

3) What You Need To Know About The Math Assessment

- The math assessment test cannot be passed or failed; it is used only for placement in Cabrillo College courses. **But**, the better you do, the higher your placement, and the fewer math classes you have to take, which means less time spent taking classes and less money spent on unnecessary classes.
- The assessment results help predict the highest math class in which you will succeed. In addition to the tests, other educational criteria may be factored into your placement score. After the assessment process, you will make an appointment to spend some time with counselors who provide you with an orientation to Cabrillo and the development of your required educational plan.
- Calculators are not needed (and are therefore not allowed) on the assessment tests. There are **practice tests** available, which can be picked up in the assessment office, Room 1006. It's a great idea to at least look these over to get an idea of what you will be tested on.
- If you are not satisfied with your score on the assessment test, you may study (work through the practice tests?) and retake the test ... but you may retake the test only once. You MAY NOT retake the math assessment after you have enrolled in a Cabrillo math class and received a grade. The assessment test may not be used to "jump over" courses. The assessment test is ONLY for **initial placement**.
- Depending on how busy things are in the Assessment Center, you will either be given a computerized version of the test or a pencil-and-paper version of the assessment test. Either test takes forty-five minutes.

4) Frequently Asked Questions

A. How long are the tests and orientation?

- The math test (whether computerized or pencil-and-paper) is limited to 45 minutes. The entire assessment, which includes math, reading and writing, takes about two hours.
- Plan to spend about an hour for counselor orientation and educational planning after you finish the assessment.

B. Do I need an assessment test and orientation?

- If you have an AA/AS or higher degree, you are exempt from assessment; however, you **must satisfy** course prerequisites. If you attended another college, show your transcripts and/or assessment documentation to a counselor. If you have no math courses on your transcripts, you will have to take the assessment test to determine initial placement.
- You need the assessment and orientation before registering in Cabrillo courses if you plan to do one or more of the following:
 - Earn an AA/AS degree or certificate
 - Transfer to another college/university
 - Satisfy math/English prerequisites
 - Enroll in a program
 - Take more than six units

C. What if I don't want to take the assessment test?

- You may waive the assessment, by subject, if you show documentation for one of the following:
 - Successful completion of English and Math courses at another college
 - Assessment scores from another college
 - Advanced Placement Test scores with an earned 3, 4, or 5 in English or calculus
- You need the orientation if you are new to Cabrillo. You must show your course equivalency documentation/transcript to a counselor.
- If you wish to start with "Basic Skills" math (Math 254 or Math 254 A/B), you do not have to take the assessment test.

D. ***When do the assessment tests start?***

- Currently, the Assessment Center is open year-round.
- Phone (831) 479 - 6165 to determine drop-in times.
- There are some evening hours available for assessment. Remember, it is best to plan ahead to take the assessment test early to avoid the inevitable rush toward the end of registration periods.

E. ***Why do I need to take an assessment test?***

- Research indicates that assessed students make wiser choices in their course selection and, therefore, may be more successful in their course completion.
- You have the right to refuse the assessment process; however, all students **must meet** course prerequisites, which you may satisfy through the assessment.
- For information and the appropriate form to sign, please call 479-6165.

Chapter 2

How to Pass Your Math Course

Here we help you learn the "survival skills" you need in your Math class: You may have to approach Math differently than you would other subjects if you want to do well. So, in this chapter you'll find out how to...

- Set yourself up for success
- Study for Math by yourself and within a study group
- Make the system work **FOR** you.

Read through these questions and see if any of them sound like the things you've been asking yourself. Then go back and read our answers. That's a good place to start if you want to succeed at Math. Remember that we want you to do well. Regardless of your age, gender, or past experience in Math, you can dramatically improve your chances of passing your Math class with a good attitude and the right advice.

1) **WHY DO I HAVE TO TAKE MATH IF I'M NEVER GOING TO USE IT?**

A lot of people ask that question, and it's a good one. We think we have a good answer, but you decide.... To do Math, a person has to learn to "reason," to take control of their thinking and find answers to questions that are important to them, like "What's going to happen next?" or "Why did this happen?" or "How can I get what I want?" Solving typical textbook Math problems is SIMPLE compared to solving real world problems, but when you make an effort to understand and do Math well, you get good practice in reasoning that can help you in everything you do. It's true that you may never use an equation again as long as you live, but you will have to think through a lot of tough problems in your life and you'll have to find some way of making good decisions. If you don't learn to think for yourself and decide for yourself what's going to work and what's not, just remember... there are an awful lot of people out there who will be more than happy to do your thinking for you. And if you don't learn to reason for yourself, you'll have no choice but to let other people tell you what to think and to do. Do you think that's a good idea. . . ?

2) **I'VE NEVER BEEN REALLY GOOD AT MATH. DOES THAT MEAN I'M DOOMED?**

Absolutely NOT! If you need a good role model... Albert Einstein flunked out of Math in high school. What it DOES mean is that you will have to make some extra efforts to learn the material. There are people out there who think learning Math is easy, but they're pretty rare. Different people learn different things different ways.

Just because Math hasn't been easy for you, doesn't mean you can't do it. C's and D's in high school, whenever that was for you, don't mean you can't get A's and B's now. We've seen it happen lots of times. You're not the same person you were in high school; you don't have the same priorities or the goals. And the Math is not the same either.

3) **HOW IS MATH IN COLLEGE DIFFERENT FROM MATH IN HIGH SCHOOL?**

In a lot of ways... for instance, you can go back and re-learn the things you didn't get clear in high school and not have to struggle through the rest of your Math lost on the basics. **A Math class in college usually moves about twice as fast as a typical high school class.** For some students, that seriously reduces the "boredom factor" and keeps the class more interesting. The teacher will not usually slow down the pace if you have trouble keeping up. But persistence is not enough. "Hanging in there" right up to the end will not get you a passing grade. If your final average for the course is a little below a "C," the instructor will RARELY give you the benefit of the doubt and let you slide by, because if you don't really know the material... a "social pass" is the kiss of death in the next course.

You are expected to approach the course aggressively, to "go after" what you want to learn: the instructor will not "spoon-feed" you. The lectures will never cover every detail of what you need to know. You'll be expected to supplement the lectures by reading the text, by working exercises, by discussing the concepts in your study group, by questioning the instructor in and out of class, by talking to tutors and by looking for examples and exercises in other texts in the Library or in the Math Learning Center. The exams may well contain problems that are EXTENSIONS of the techniques and concepts you've seen before; the real test of your understanding is how you handle "new" situations. There's a sign in the Math Office that says, "Intelligence is not what you know how to do, but what you do when you don't know what to do." That pretty well sums it up. Basically, you can't get a passing grade by memorizing every formula, rule and example. You have to THINK about what you are doing, talk about what you're doing with your classmates and your teacher, and develop confidence in your ability to understand and to solve problems.

4) DO I HAVE TO BE THERE FOR EVERY CLASS?

Most teachers take attendance during the first two weeks, so they can drop anyone who isn't attending and give their seat to someone who's serious. But if you want to know if you have to attend every class meeting to pass... probably not. By the same token, the instructor is under no obligation to give you notes or extra help if you're not there. It is your responsibility to be there; if you weren't, get the notes and the assignments from someone who was present. Then make your best effort to teach yourself what you missed. Talk to the other students. Talk to the tutors in the Math Learning Center.

If your absence was unavoidable (not just "too nice a day to go to school"), your instructor will probably take a little time to help you get caught up. But only after you've made an honest effort to do so on your own.

5) WILL I PASS THE COURSE IF I ATTEND EVERY CLASS AND TRY REAL HARD?

The answer is "only if you learn everything you're supposed to learn." We assume that you are in the class to learn. We are there to teach you. You will be graded primarily on your understanding of the material in the course.

Some people think that they will pass if they JUST ATTEND EVERY DAY AND TRY REAL HARD. Nope. Sorry. Not unless you learn what you're supposed to learn. You will have to prove that you deserve to pass.

6) DO I HAVE TO DO ALL THE HOMEWORK TO PASS?

Again, I'd have to say, probably not. But we don't assign homework just to hear our chalk scrape. Doing homework is a chance for you to practice skills we talk about in class, to see things we didn't talk about in class, to stretch your abilities and broaden your experiences.

Some of us collect homework and grade it; some don't. Every single one of us assigns it. If you don't do it, that's your decision. But it will affect you, one way or another. What you have learned will come out on the exams and quizzes. So there's really no escape... use the homework to help you learn, whether it is collected and graded or not. DON'T LET YOURSELF GET AND STAY BEHIND.

7) HOW MUCH TIME SHOULD I SPEND ON HOMEWORK?

It really depends on your own skill levels coming into the course, how much you remember, how easily you pick up concepts, and how much homework your teacher assigns. We usually tell people to expect an hour to two hours of time for each hour of class. And it tends to change, depending on the topic and on what part of the semester you are in. You should probably include an hour or two every week for working with your study partner or study group.

8) WHEN SHOULD I GET INTO A STUDY GROUP AND HOW DO I DO IT?

One of the best ways to learn something is to try to explain it to somebody else. If you can get together with some other people from your class, you can split up the assignments, compare answers, discuss questions and hard topics and really polish up your own understanding. So, if you want to learn the stuff, get into a study group as quickly as you can, or start one of your own.

Some teachers assign projects that are to be done in groups. In the "real" world, you will always be working with people on projects. It is very valuable to get that experience of cooperation, comparison, farming out pieces of the job, and communication skills. When five people are working on a job, it takes a lot less time than one person doing it all himself or herself.

In your class, your instructor may organize groups for you. But probably not. Try to get to class a little early, introduce yourself around, get to know faces and names, and maybe even make a little announcement before class starts to get the ball rolling. Trade phone numbers and set up meeting times and places. Work it out. It'll be worth your while.

9) WHAT ARE MY TEACHER'S "OFFICE HOURS" FOR?

Teachers keep office hours so that you can come by and ask questions, get advice, get help, outside of class hours. If your instructor's office hours don't mesh with your free hours, then ask the instructor to see if you can set up a special time just for you, just that once. There are several places to get help on campus. Different student groups have access to specialized free tutoring services, depending on their situation. Ask your teacher about some of those. You can work with your study group or work with the tutors in the Math Learning Center. You should take advantage of all of these as well as your teacher's office hours.

10) WHERE IS THE "MATH LEARNING CENTER"?

Located in Room 1074, on the north-east corner of the library, the MLC is a free, "drop-in" style tutoring service. Feel free to come in for awhile whenever it's open. The hours of operation change depending on how Cabrillo is doing financially, so check with the MLC staff for current hours. It's a pretty casual atmosphere, where you can work in groups and get help from tutors. The MLC has a few computers available for your use, a number of scientific and graphing calculators that you can use while you're there, and various videos and CDs to help learn difficult concepts. The people in the MLC are eager and willing to help.

11) WHAT IF MY ENGLISH LANGUAGE SKILLS ARE WEAK?

It depends on just how "weak" they are. If you can understand the lecture and take notes effectively, you're probably OK. If you can understand what the teacher is saying but can't take notes because you're concentrating hard on the lecture, you should consider getting someone else to work as your study partner in class: you listen and make sure you understand, your partner will take notes, and then you can get together outside of class to exchange information.

Most courses at Cabrillo are taught in English. A few instructors teach in both English and Spanish. But waiting for a particular class to be taught in a bilingual form is probably not a good idea. That means you will have to make an extra effort to get the material, using techniques like the study partner idea.

Mathematics is a foreign language to almost everyone on the planet. You might be able to learn the Math concepts easily if the lectures were in a language you understood. But if you don't speak the teacher's language well enough to understand the lectures, trying to learn Math under those circumstances will be very nearly impossible... it would be like a French speaker trying to learn Chinese from a teacher who speaks only Russian.

12) WHAT ARE MY "RIGHTS" AS A STUDENT?

You have the right to be treated with respect and fairly (which means "just like everybody else"). You have the right to expect your teacher to come to class prepared and on time. You have the right to have all the material in the course presented clearly, in a timely manner and at a reasonable pace. You have the right to a good learning environment in the classroom.

But you also have responsibilities that go with those rights. You have an obligation to treat everyone in the class with respect and fairly (students and instructors). You have an obligation to come to class prepared for the topics to be discussed. You have an obligation to be on time, to participate in the class and any discussions, to promote a good learning environment for yourself and others. You have an obligation to make every effort to learn the material.

13) WHAT IF I DON'T LIKE MY TEACHER?

Well, it happens sometimes. Talk to your teacher about it first. If it is just a misunderstanding, then that may clear it up. If you can't clear it up, if it's a personality conflict, you have a couple of options...

Drop the class. You can always re-enroll in the course the next semester.

Work around it. There are a lot of people in the world with whom you will not be able to get along. Stay in the class, work through it, don't take it personally. If you do decide to stay in the class, don't aggravate the situation by making negative comments to the other students or picking fights with your teacher. Your teacher has a responsibility to provide the best learning environment possible for all concerned. If your presence in the class interferes with the other students' learning, the teacher may drop you from the class.

If you feel that your teacher is harassing you or discriminating against you, you should talk with your teacher first. If you are not able to resolve it, you should write up your complaint, include details of the events and specific examples, sign it and present it to the Program Chair of the Mathematics Department, who will treat it as confidential. Serious complaints should always be made in writing. If you are not willing to write it out and sign it, it is probably not as serious as you think.

But if you think your teacher is being unfair to ask you to learn to do something, or to think about something in a different way from your last teacher, forget it. You're paying for an education, and that's what education is.

14) WHEN SHOULD I DROP OUT OF A COURSE?

You CAN drop a class anytime, before the three-quarters point in the course. But the question was when SHOULD you drop, so...

If you can see right off that you enrolled in a course that is too advanced for you at the moment, drop the class IMMEDIATELY and enroll in the appropriate lower class. Don't just stop going to class. You'll lose a semester and probably forget even more Math than you have.

If you have a failing average at midterm, drop the class. There is a SMALL chance that you might pull out a "C" during the last half of the course, but your skill levels will be so low, that you will probably not survive the next class.

If you have a personal or employment situation that develops that prevents you from attending the class for more than two weeks, you should seriously consider dropping because unless you are REALLY GOOD, you won't be able to catch up.

15) COULD I BE "LEARNING DISABLED" IN MATH?

There are real "learning DISABILITIES" that can have a major impact on your ability to succeed in Math. But everybody has "learning DIFFICULTIES." Math comes easier to some people than to others, and no two people learn something exactly the same way or in the same depth. Not everybody has the same ability in Math, or in Art. People are different and have different strengths and capabilities.

You may be better in languages than you are in Math. That does not mean you have a true "learning disability." It may mean that you're better at languages than you are at Math. For most math teachers, it's the other way around...

But if you do REALLY WELL in everything else and just can't seem to get a handle on math, you may have a learning disability that affects Math. For instance, people with dyslexia can learn to compensate and can read just fine. But when dyslexics start switching numbers around, their Math will suffer dramatically.

If you think you may have a learning disability, talk to a counselor immediately. They will arrange for a preliminary screening with an on-campus specialist and if it seems likely that you have a disability, then you will be tested and the nature and depth of the disability documented. You can then take advantage of special programs and accommodations that will help you compensate for your disability and learn what you need to learn.

16) DO YOU HAVE ANY GOOD ADVICE ON HOW TO STUDY?

There are lots of things that different students do that help them study; here's a list of things that have worked for other people...

- Go over your class notes before starting the homework problems.
- Rewrite or review your notes as soon as possible after class is over, filling in gaps if you can. Refresh your memory about what was done in class.
- Study 1 to 2 hours outside of class for each hour in class. Spread it out. Don't try to do it all in one sitting if it makes you "antsy."
- Don't put off doing homework until the last minute; you'll just get behind. You need time to think about the stuff you're learning, not just time to work the problems.
- Think about what you learned and what you didn't understand. Keep a journal of the things you learned and the things that seemed fuzzy to you.
- Read ahead in the book, preferably with your study partner or study group.
- Come to class prepared. Bring pencils, paper, erasers, a ruler, graph paper, colored pens, a calculator and a positive attitude.
- Get a partner in class. One of you should take notes from the board, while the other one takes down what the teacher says about the problems and what's important and such.
- If you think it might help and it is OK with your instructor, tape record the lectures so you can go back over what the teacher said later on.
- Try to study for exams in an environment as much like the environment where you'll take the exam as possible. If you usually study in your underwear with the stereo on, having to take the test in an uncomfortable, stuffy, quiet classroom in one of those little desks may make it just that much harder for you to remember the things that you knew the night before. Since you can't change your test environment, you must change your study environment.
- If your teacher will let you use a calculator in class, make sure you use it on all your homework. Get used to how it works, what it can do and what it can't do.

CHAPTER 3

The Sequence of Math Classes at Cabrillo: What's My Next Course?

The course numbering system at Cabrillo (and at most colleges) is pretty crazy, but, basically, the Math courses at Cabrillo are broken up into 2 categories: non-transferable courses (numbered 100 to 299) and transferable courses (numbered 1 to 99). Here's the deal with the numbering...

- **Non-transferable: 100 - 299** ... these courses are broken up into 2 categories: "basic skills" (numbered 200 to 299) and "high school equivalent" (numbered 100 to 199):

- **Math 254 or 254 A/B:** Essential Mathematics
- **Math 154 or Math 154 A/B:** Elementary Algebra
- **Math 153:** Geometry
- **Math 152:** Intermediate Algebra

- **Transferable: 1 - 99** ... these courses, in one way or another, fulfill certain requirements at Universities. All of these courses have at least a Math 152 prerequisite:

- **Math 4:** Pre-calculus
- **Math 5A/B/C:** Calculus and Analytic Geometry
- **Math 6:** Linear Algebra
- **Math 7:** Differential Equations
- **Math 10:** Mathematics for General Education
- **Math 12:** Elementary Statistics
- **Math 13:** Finite Mathematics
- **Math 15:** Number Systems
- **Math 18:** Business Calculus
- **Math 23:** Discrete Mathematics
- **Math 51:** Trigonometry

If you start at the non-transferable level, the sequence is pretty predictable up to the Math 152 (Intermediate Algebra) level: Math 254 (or 254A/B) leads into Math 154 (or 154A/B) which leads into Math 152. Once you have completed Math 152, your choices increase greatly. Once you have completed Math 152, you are now at the transfer level courses ... which course you take after Math 152 depends on what your major is (if you've decided that yet), what University you plan to transfer to (if you've decided that yet), and other factors. Here's a general guideline:

- **Science-Based Major?** You will probably need to take Math 4 and Math 5A/B/C.
- **Non-Science Based Major?** You can probably choose from Math 10, 12, 13, 15, 18, or 23

The keys to determining which transfer level course is right for you is thinking/planning ahead and getting good advice from a counselor. The Transfer Center (Room 806) can also provide guidance here and, if you know which University you are transferring to, the counselors at your transfer University can advise you as well. Hmmm ... determining which transfer level course is right for you requires research, planning, and analysis of the options ... things we aim to teach through mathematics.

Please keep in mind that requirements (at both Cabrillo and Universities) can change from year to year ... it's a real chore to stay on top of these changes. We don't expect you to track these changes ... that's what the Counselors do. What you can do to help yourself is to be aware of this and to check in with Counselors (or other support staff) at appropriate times to keep your educational plan running smoothly.

CHAPTER 4

DESCRIPTIONS OF NON-TRANSFERABLE MATH COURSES

Remember, these courses are broken up into 2 categories: "Basic Skills" and "High School Equivalent"...

MATH 254 or MATH 254A/B (Basic Skills)

This course teaches basic Arithmetic and Pre-algebra. You can take this course in one semester (**Math 254**) or you can take this course over two semesters (**Math 254A and Math 254B**). You will learn how to work with whole numbers, fractions, decimals, percentages, proportions, and ratios. This course also is an introduction to Algebra. You will learn how to work with positive and negative numbers, exponents, square roots, Algebraic expressions, formulas and measurements. You will learn how to use Arithmetic and Algebra to solve some common life and business problems. This course is particularly appropriate for you if your Mathematical experience is limited or not recent, or if you want to overcome an anxiety about Math.

MATH 254: ESSENTIAL MATHEMATICS ... this is the condensed form of this course where the material is delivered through computer software, not by an instructor lecturing. This format is best for students who need a quick, somewhat self-paced review of basic mathematics.

Requirements for enrollment:		Other suggestions for success:
None		None
You pay for:	You attend:	The class is conducted as:
3 units	4 hours per week plus 2.33 "arranged" hours per week in the Math Learning Center	a mediated learning class; that is, the material is presented on a computer, quizzes are taken on the computer, but all exams, including the final exam, are paper and pencil tests.
AA/AS Credit:	Transfer Credit:	Grading Options:
No	No	"Credit/No Credit" unless a letter grade is requested by the student
License Fee (including text):	Used License Fee:	Other Possible Expenses to Budget for:
\$65.00	Not available	you may wish to purchase a simple pocket calculator to use to check your work (\$5-10)

MATH 254A/B: ESSENTIAL MATHEMATICS... This is Math 254 spread out over 2 semesters and offered in a lecture format instead of using computer software as the primary mode of delivering the topics.

Requirements for enrollment:		Other suggestions for success:
None		None
Each semester you pay for:	Each semester you attend:	The class is conducted as:
2 units	2.67 hours per week plus 2.2 "arranged" hours per week in the Math Learning Center	structured lectures and individual attention, some sections are taught in both English and Spanish
AA/AS Credit:	Transfer Credit:	Grading Options:
No	No	a letter grade is optional; the course may be taken for "Credit/No Credit."
Estimated New Text Cost:	Estimated Used Text Cost:	Other Possible Expenses to Budget for:
\$95.00	\$60	you may wish to purchase a simple pocket calculator to use to check your work (\$5-10)

You may **not** take Math 254B until you have successfully completed Math 254A.

MATH 154: ELEMENTARY ALGEBRA (High School Equivalent)

This course is a systematic development of numbers, polynomials and polynomial fractions. You will learn to solve and graph linear equations and inequalities and to solve simple quadratic equations using a variety of techniques. You will explore exponents and radicals. You will learn problem-solving skills using critical thinking and analytical reasoning. This is essentially the first year of traditional high school Algebra condensed into a single semester.

Requirements for enrollment:		Other suggestions for success:
Credit in Math 254, Math 254B, or a similar course in another college or equivalent skills		Eligibility for English 100 and Reading 100 is STRONGLY recommended
You pay for:	You attend:	The class is conducted as:
4 units	5 hours per week	lecture with possible group work
AA/AS Credit:	Transfer Credit:	Grading Options:
Yes	No	may be taken for a letter grade only; no "Credit/No Credit" option is allowed
Approx. New Text Cost:	Approx. Used Text Cost:	Other Possible Expenses to Budget for:
\$90.00	\$60	you may wish to purchase a scientific calculator to familiarize yourself with and to check your work (\$10-20)

MATH 154A/B: ELEMENTARY ALGEBRA (High School Equivalent)

This is a pair of courses that TOGETHER are the equivalent of Math 154. They were specially designed for students having identified learning disabilities in Math. It is the same as the usual Math 154 but extended over two semesters. Math 154A is the first half and Math 154B is the second half. To get into Math 154B you must successfully complete Math 154A. THIS IS NOT A "WATERED-DOWN" VERSION OF THE REGULAR COURSE. Students in this section are expected to reach the same levels of performance as other Math 154 students, but with the advantage of extended time and a "lab" where students can get tutoring help following the class hour every day. Students who have unsuccessfully attempted the regular Math 154 may find this course better suited for their needs.

Requirements for enrollment:		Other suggestions for success:
credit in Math 254, Math 254B, or a similar course in another college or equivalent skills, regular participation in the "lab" session		eligibility for English 100 and Reading 100 is STRONGLY recommended
Each semester you pay for:	Each semester you attend:	The class is conducted as:
2 units	8 hours per week	lectures, individual attention, a lab/tutoring session held daily during the hour after the regular class
AA/AS Credit:	Transfer Credit:	Grading Options:
Yes, if both are successfully completed	No	may be taken for a letter grade only; no "Credit/No Credit" option is allowed
New Text Cost:	Used Text Cost:	Other Possible Expenses to Budget for:
\$90	\$60	you may wish to purchase a scientific calculator to familiarize yourself with and to check your work (\$10-20)

MATH 153: GEOMETRY (High School Equivalent)

This course combines intuitive and theoretical approaches to Euclidean Geometry. Deductive proof techniques are applied to congruence, similarity, parallel lines and circles. This course is essentially equivalent to traditional high school Geometry. This course is STRONGLY RECOMMENDED as preparation for Pre-Calculus (Math 4) and it is required for students planning to take Math 15, Number Systems.

Requirements for enrollment:		Other suggestions for success:
A grade of "C" or better in Math 154 or a similar course in another college or equivalent skills		eligibility for English 100 and Reading 100 is STRONGLY recommended
You pay for:	You attend:	The class is conducted as:
3 units	3 hours per week	lecture with possible group work
AA/AS Credit:	Transfer Credit:	Grading Options:
Yes	No	may be taken for a letter grade only; no "Credit/No Credit" option is allowed
New Text Cost:	Used Text Cost:	Other Possible Expenses to Budget for:
\$60.00	\$40	you may purchase a small set of tools used in Geometry. A triangle, a compass, a protractor, a ruler, etc. (\$5-10)

MATH 152: INTERMEDIATE ALGEBRA (High School Equivalent)

This day and age the real and complex numbers, radicals, Algebraic equations and inequalities, linear and quadratic systems of equations, exponentials and logarithms. You will develop increased graphical skills. You will learn problem-solving skills using critical thinking and analytical reasoning. This course is essentially the second year of traditional high school Algebra condensed into a single semester.

Requirements for enrollment:		Other suggestions for success:
a grade of "C" or better in Math 154 or a similar course in another college or equivalent skills		eligibility for English 100 is STRONGLY recommended
You pay for:	You attend:	The class is conducted as:
4 units	5 hours per week	lecture with possible group work
AA/AS Credit:	Transfer Credit:	Grading Options:
Yes	No	may be taken for a letter grade only; no "Credit/No Credit" option is allowed
New Text Cost:	Used Text Cost:	Other Possible Expenses to Budget for:
\$90	\$60	you may be required to purchase a scientific calculator having a "LOG" key (\$15-25); depending on the instructor's choice of text, a Student Solutions Manual may be available through the Bookstore or "used" (\$5-30)

CHAPTER 5

DESCRIPTION OF TRANSFERABLE MATH COURSES

Remember, these courses all transfer, in some way, to Universities ... which course transfers to which University for which major depends on several factors ... see a Counselor for the details!

MATH 4: PRE-CALCULUS

This course is a study of functions and their properties, including trigonometric, logarithmic, exponential, polynomial and rational functions and their graphs, their inverses and applications. The course transfers to the CSU system as is and to the UC system for four units only.

Requirements for enrollment:		Other suggestions for success:
a grade of "C" or better in Math 152 or in a similar courses from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended, Knowledge of Plane Geometry is assumed
You Pay for:	You attend:	The class is conducted as:
5 units	5 hours per week	lectures and possible group work; all instructors require the use of at least a scientific calculator; some will require the use of a graphing calculator/utility
AA/AS Credit:	Transfer Credit:	Grading options:
yes	CSU UC (4 units only)	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost:	Used Text Cost:	Other Possible Expenses to Budget for:
\$100	\$80	you will NEED access to a scientific calculator (\$15-30) at the least; you MAY wish to buy a computer graphing utility (\$40-100) or a graphing calculator (\$50-120) or use those available in the MLC

MATH 5A: CALCULUS AND ANALYTIC GEOMETRY I

This course is designed for majors in Mathematics, Engineering or the Physical Sciences. It includes a study of plane analytic geometry of lines and graphing, both differential and integral calculus of algebraic and trigonometric functions of one variable with applications. The course builds a strong foundation in the theoretical concepts behind the Calculus, develops skills in manipulation of the techniques of Calculus and emphasizes applications of concepts and skills to Mathematics, Engineering and Physical Science.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 4 or similar courses in another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
4 units	5 hrs/wk	Lectures with the possibility of group work; all instructors require the use of at least a scientific calculator; some will require the use of a graphing utility
AA/AS Credit	Transfer Credit	Grading Options
Yes	CSU, UC	must be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$120 (the text is used for up to three semesters)	\$80	you may wish to purchase a scientific calculator (\$15-30) or a graphing calculator (\$50-120)

MATH 5B: CALCULUS AND ANALYTIC GEOMETRY II

This course is a continuation of Calculus and Analytic Geometry I, Math 5A. It extends the study of the Calculus to Integral Calculus and the study inverse trigonometric, exponential and logarithmic functions of one variable with applications to Mathematics, Engineering and the Physical Sciences. It also includes the study of advanced techniques of integration, infinite sequences, and infinite series.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 5A or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
4 units	5 hrs/wk	Lectures with the possibility of group work; all instructors require the use of at least a scientific calculator; some will require the use of a graphing utility
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
(The text from Math 5A is still used.)	(The text from Math 5A is still used)	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), or use those available in the MLC

MATH 5C: CALCULUS AND ANALYTIC GEOMETRY III

This course is designed for majors in Mathematics, Engineering or the Physical Sciences as a continuation and extension of Calculus and Analytic Geometry II, Math 5B. It includes a study of polar coordinates, three-dimensional graphing and analytic geometry, vectors in two and three dimensions, partial derivatives, multiple integrals, line and surface integrals and vector field theory with applications.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 5B or a similar course in another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
4 units	5 hrs/wk	Lectures and possibility of group work; some instructors may require the use of a graphing utility or graphing calculator
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	must be taken for a letter grade there is NO "Credit/No Credit option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
(The text from 5B is still used)	(The text from 5B is still used)	you may wish to purchase a scientific calculator (\$15-30) or a graphing calculator (\$50-120)

MATH 6: INTRODUCTION TO LINEAR ALGEBRA

This course is a standard introduction to linear algebra. It includes a study of vectors in K , matrices, row reduction methods, inverse matrices, determinants, vector spaces, bases, linear independence, transformations, eigenvalues, eigenvectors, and the Gram-Schmidt process. Check with the Math department for details regarding the offering of this course.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 5C or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	lectures and possibility of group work; all instructors require the use of at least a scientific calculator; some will require the use of a graphing utility or computer algebra system
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), or a computer algebra system, or use those available in the MLC

MATH 7: INTRODUCTION TO DIFFERENTIAL EQUATIONS

This course is a standard introduction to Differential Equations. It includes a study of first order, second order, homogeneous, non-homogeneous differential equations, variation of constants and applications. Simple linear systems with constant coefficients, Laplace transforms and Fourier Series are examined in the course. Check with the Math department for details regarding the offering of this course.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 5C or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; all instructors require the use of at least a scientific calculator; some will require the use of a graphing utility or computer algebra system
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), or a computer algebra system, or use those available in the MLC

MATH 10: SURVEY OF COLLEGE MATHEMATICS

This "survey course" in college level Mathematics satisfies the general education requirements for both the UC and CSU systems. Topics may include the concept of proof, deduction and induction, mathematical systems, probability and statistics, theory of games, linear programming, group theory, and concepts of advanced mathematical modeling.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 152 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; instructors may require the use a scientific calculator; some will require the use of a graphing utility or computer algebra system
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$80	\$60	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), or a computer algebra system, or use those available in the MLC

MATH 12: ELEMENTARY STATISTICS

This course includes an in-depth study of histograms, measures of central tendency and dispersion, probability, binomial and normal distributions, estimation and hypothesis testing, regression and correlation. This course is recommended for Biology, Mathematics, Social Science, Education and Business Administration majors. A computer component is included in the course

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 152 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
4 units	5 hrs/wk	Lectures and possible group work, includes a computer lab component using computer software and/or graphing calculator; instructors may require the use of a scientific calculator
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU UC (if combined with Business 9, only one course will transfer)	may be taken for a letter grade or "Credit/No Credit"
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$80	\$60	you may wish to purchase a statistical calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), or use those available in the MLC

MATH 13: FINITE MATHEMATICS

This course includes a study of the theory of sets, linear programming, vectors and matrices, the math of finance, probability, with applications to business and the social sciences.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 152 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; instructors may require the use of a scientific calculator; some may require the use of a graphing utility or computer algebra system
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU UC	may be taken for a letter grade or "Credit/No Credit"
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator (\$50-100), a computer algebra system or use those available in the MLC

MATH 15: NUMBER SYSTEMS

The course provides an understanding of the mathematical nature of arithmetic and the structure of mathematical systems. Topics covered may include a study of the theory of sets, relations, systems of numeration, the real number system and geometric concepts. The course is specially recommended for students planning to become elementary school teachers.

Requirements for enrollment		Other suggestions for success
A grade of "C" or better in Math 152 and 153 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; instructors may require the use a scientific calculator
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU	may be taken for a letter grade or "Credit/No Credit"
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a scientific calculator (\$15-30) or use those available in the MLC

MATH 18: BUSINESS CALCULUS

This course is an intuitive introduction to the Calculus. It includes a study of differentiation and integration of functions of one variable, with particular attention to business applications, functions of several variables, partial differentiation, maxima and minima and Lagrange multipliers.

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 152 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; instructors may require the use of a scientific calculator; some may require the use of a graphing utility or computer algebra system
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU UC (combined with 5A, only one course transfers)	may be taken for a letter grade or "Credit/No Credit"
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a statistical calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator(\$50-120), a computer algebra system or use those available in the MLC

MATH 23: DISCRETE MATHEMATICS

The course is an introduction to discrete mathematical systems. It includes a study of the theory of sets, Boolean algebra, number theory, methods of proof, logic, equivalence and order relations, counting methods (combinations and permutations), solving recurrence relations, graph theory, network models, combinatorial circuits, circuit minimization techniques, automata and grammars. **COMPUTER SCIENCE MAJORS SHOULD ENROLL IN THE COMPUTER SCIENCE VERSION OF THIS COURSE: CS 23.**

Requirements for enrollment		Other suggestions for success
a grade of "C" or better in Math 5A and Math 14, or a grade of "C" or better in Math 5A and CS 20, or similar courses in another college or equivalent skills		eligibility for English 100 and Reading 100 is recommended
You pay for	You attend	The class is conducted as
4 units	3 lecture hrs/wk 3 lab hrs/wk (lab time by arrangement)	Lectures and possible group work, with lab time by arrangement
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU or UC	may be taken for a letter grade or "Credit/No Credit"
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$75	\$50	you may wish to purchase a scientific calculator (\$15-30) , a computer graphing utility (\$40-100) or a graphing calculator (\$50-120), a computer algebra system or use those available in the MLC

MATH 51: TRIGONOMETRY

This course includes a study of angle measurement, right triangle and circular trigonometry. You will work with triangles, trigonometric functions and their graphs, applications in surveying, wave motion and navigation, trigonometric equations, vectors and complex numbers. You will learn problem-solving skills using critical thinking and analytical reasoning. It transfers to CSU, but does not satisfy the CSU Quantitative Reasoning requirement. It does not transfer to UC. The course may be used to meet the Math admission requirement for both the UC and CSU systems. Transferability sounds crazy ... see a counselor for details!

Requirements for enrollment		Other suggestions for success
A grade of "C" or better in Math 152 and 153 or in a similar course from another college or equivalent skills		eligibility for English 100 and Reading 100 is STRONGLY recommended, Knowledge of Plane Geometry is expected
You pay for	You attend	The class is conducted as
3 units	3 hrs/wk	Lectures and possible group work; some instructors may require the use a graphing utility
AA/AS Credit	Transfer Credit	Grading Options
yes	CSU	the course may only be taken for a letter grade; there is NO "Credit/No Credit" option
New Text Cost	Used Text Cost	Other Possible Expenses to Budget for
\$60	\$40	you may wish to purchase a scientific calculator (\$15-30) or a graphing calculator, or a computer graphing utility (\$50-120)