

Course Description: The two semester sequence of Math 1111 and Math 1113 presents a functional approach to algebra and trigonometry. It provides the student with a foundation on elementary functions and a conceptual understanding of the mathematical topics needed to succeed in subsequent mathematics and science courses, especially calculus. The properties, graphs and applications of rational, exponential, logarithmic, and trigonometric functions as well as vectors and systems of equations will be presented. Applications will be drawn from diverse fields including some areas suggested by students so as to better understand the stories related by real world problems. Modern computing technology will be used as appropriate.

The emphasis in this course is on understanding and problem solving. The purpose of problem solving is not merely to obtain an answer but also to extend and cultivate the ability to think independently and creatively, beyond the mere application of computing rules. During the course, you are encouraged and expected to develop a conceptual grasp of the topics and to develop the ability to move effortlessly between mathematical results and their interpretations.

A substantial portion of class time will be devoted to problem solving and you will be expected to work a significant number of problems for homework. Solutions to some of the homework problems that are assigned will be discussed in class. Exams will consist primarily of problems similar to those suggested for homework. **Make no mistake, it is impossible to pass the exams without doing the homework on a regular basis. This class is as much about commitment as it is about ability.**

Prerequisites: A grade of “C” or better in Math 1111, or its equivalent and an appropriate ability in algebra & geometry is required. It is assumed that you will remember basic formulae and techniques from those courses, such as the area of a rectangle ($A = LW$) or circle ($A = \pi r^2$) etc. As a general rule of thumb, any facts, formulae and techniques which you need to solve homework problems will probably be needed for exams. Students with C or lower in recent math courses should carefully re-evaluate study habits AND allocate additional study time. The keys to success are commitment, internal motivation, self-discipline and the management and effective use of study time.

Class Policies

Communications: The primary means of communications between the instructor and the students will be announcements and discussion in class. Out-of-class communications between the instructor and the students will be via the class web site and if needed, via Email.

Initial EMail: *During the first week of class, each student must send the instructor an Email message giving the following information:*

- *Full name? How you want me to contact you if that becomes necessary?*
- *Major and how close to completion? What you hope to do with your degree?*
- *Do you currently have a job? A career? How many hours/week do you work?*
- *Why are you taking this class? What do you expect to learn?*
- *What grade is your target for this class? How can I best facilitate your learning?*

The subject line of the Email should include your Full Name and “MATH 1113/xx” where xx is the section number for your class. All information will be kept confidential.

Class Web Site: The URL for the class website is on the 1st page of this syllabus. All class material will be distributed via the web site. Be certain to visit the web site often to obtain all handouts and assignments. Students are responsible for all materials and announcements made in class, whether or not they are present. Much of this information is usually also posted on the web site. Documents on the website may be updated from time to time. Generally any files that have significant updates after

they are first posted are specially marked. If you miss a class, it is your responsibility to obtain notes from the website and/or from a classmate. Absence from class is never a valid excuse.

Changes to Syllabus: If, for some reason, changes need to be made to this syllabus or any other course handout at a later date, announcements will be made in class and/or changes will be made to the copy found on the class website. Once an announcement has been made or changes have been posted on the web page, the new version of the syllabus or other document supersedes previous version. Absence from class on the day an announced change is made is not a valid excuse. *By remaining enrolled in this class, you are indicating that you have read, understand and accept all rules, regulations and guidelines contained in this syllabus.*

Class Discussion: Meeting the course objectives requires effective two-way communication. In-class discussion is essential to keep the material interesting and serves as important feedback to help me understand your grasp of the material. You are encouraged to ask questions as they arise. If you are having trouble with course material, please see me as soon as possible.

Preparation: Come to class prepared. Read ahead and review class notes. Do all homework promptly. While attendance in lectures is not mandatory, attendance will be taken and students are responsible for all materials and announcements made in class, whether or not they are present. Class attendance is strongly encouraged and may be used to supplement the grading system. Absence is never an excuse. The easiest way to succeed in Mathematics is to keep up with the material.

Attendance: Please arrive on time for all classes so you do not disturb your fellow students. During class periods where a lecture is being given, show respect for the other members of the class by holding conversations to a minimum. Likewise, please silence all beepers, pagers, cell phones and computers while in class. While attendance in lectures is not mandatory, *attendance will be taken* and students are responsible for all materials, assignments and announcements covered in class. *Class attendance is strongly encouraged.* Attendance records may be used to supplement the grading system. Most of the material for the exams will be covered in class before the exam. If you miss a class, it is your responsibility to obtain notes from the website and from a classmate. Absence from class is never a valid excuse. This class covers a lot of material very quickly. If, for **any** reason, you miss one week or more of lecture you should strongly consider withdrawing from the course.

Calculators: Students in this class are expected to use a TI-89 calculator. This calculator will be used throughout the course to enhance the mathematical thinking and to judge reasonableness of results. Calculators are allowed in classes and *most* examinations. You must provide your own calculator; one will not be provided for you. Calculators are allowed for calculations and graphing only. Stored data or programs about this course are not allowed in calculator memory.

Special Accommodations: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at (678) 915-7361 as soon as possible to better ensure that such accommodations are implemented in a timely fashion. If you have medical or other similar information that I should be aware of, please see me after class or set up an appointment with me as soon as possible. *All discussions will remain confidential.*

Exams and Grades

Review Session: Time will be set aside at the beginning of each class to discuss homework assigned in the previous class and other questions that need to be discussed. There will also be approximately an hour of class time before the each exam for review of the material that will be covered on the exam. All students are expected to be prepared and to contribute to these review sessions. This is one of the best opportunities for you to ask any outstanding questions and to have class discussions on topics that

still seem confusing. Remember that if you are confused about a subject, other students probably are also confused about it.

Homework: A list of problems from the textbook will be assigned for each topic. A preliminary copy is attached at the end of this syllabus. It is essential that you try to solve these problems. The homework problems are intended to provide practice for the tests. The assigned homework sets represent a minimum number of problems for the material covered; if you find particular areas to be difficult you should find similar problems to those assigned and do those also. Some exam questions may directly come from or be very similar to homework problems. All homework is due at the next class. Homework will be graded and will become part of the course grade. Homework problems will be graded based more on effort than on the numerical correctness of the final result.

Quizzes: Unannounced quizzes may be given periodically to encourage keeping up with the class and to generally encourage attendance in class. The quiz grades become part of the course grade.

Exams: We will have 4 midterm exams and a comprehensive final exam. The final exam will be comprehensive but will emphasize the final portion of the course. Tentative exam dates are given in the course schedule on the first page of the syllabus. Actual exams dates will generally be announced about one week in advance. Each mid-term exam may include any material covered in the class, homework and other class assignments with emphasis being placed on the material covered in class. If you know you will be missing an exam, please see me *ahead of time* to see what can be arranged. It may be possible to make special arrangements. There will be *no make-ups* without prior approval or life threatening emergency (properly documented). In cases of such emergencies, with proper documentation, missed exam grades will be replaced with the grade from the appropriate part of the final.

All examinations are closed book, closed notes. No “cheat sheets”, “memory aids” or any other type of note cards are allowed, unless provided by the instructor, and generally those are only provided for the final exam. All work must be shown on the exam papers. Students only need to bring pencils, erasers and a calculator. No other items, including notebooks, pads of paper, etc. should be within the view of the student. As stated earlier, the use of calculators (TI-89) *may* be allowed in examinations, but you must provide your own. Stored data or programs about this course are not allowed in calculator memory. Be sure to show all work as neatly and logically as possible on your exam. Full credit will not be given without showing the work needed to get to the result. A properly completed problem must show the answer and the work used to obtain the answer and should be presented in a reasonably logical and legible manner.

Graded Papers will be returned as soon as possible. If you have any questions about the grading of an exam or other assignment, please discuss the situation with me immediately after receiving the graded exam or assignment. If I decide to regrade the paper, the entire paper may be regraded, not just a specific portion in question. Grades can go up, down or remain the same upon being regraded. Exams and other assignments will **not** be regraded at the end of the semester. Missing grades will be counted as zeros. The instructor reserves the right to drop some low grades and/or curve grades and make other adjustments which are deemed appropriate. Any material not picked-up by the end of the semester will be retained only 60 days after the end of the semester.

Cancellations: If an exam has to be canceled because of inclement weather or any other reason (e.g., if the entire university is closed), it will be given during the next scheduled class period, without any other formal announcement. If classes are canceled for multiple days, I reserve the right to cancel the exam and adjust the total points for the course accordingly.

Extra Credit: From time to time, the instructor may announce extra credit assignments. These

assignments will be graded and will count as extra credit for the number of points stated in their announcement. There may not be any extra credit assignments, or there may be a few based on the wishes and whims of the instructor.

How to get help: There are multiple sources for help.

- Help sessions are available around the university, particularly at the Tutoring Center in the basement of Howell dorm. They are generally available most afternoons and some evenings.
- I am also available for help. Please see me before/after class or during office hours.

Grading

Homework	100 pts
Quizzes	Up to 100 pts
4 Mid-Term Exams	400 pts total
Final Exam	200 pts
Total	700-800 pts

A	$\geq 90\%$
B	$\geq 80\%$
C	$\geq 70\%$
D	$\geq 60\%$
F	$< 60\%$

The instructor reserves the right to drop some low grades and/or curve the grades and make other adjustments deemed appropriate.

Secret for Success in Mathematics

The most important element for doing well in mathematics is staying current with the material. Each topic builds upon the previous topics. You can't understand polynomials without understanding quadratics first. Therefore if you fall behind it is extremely difficult to catch up. I recommend setting up a time each day for doing problems. No, I am not crazy. I am being realistic. Read the relevant chapters in the book *before* class. This will maximize the return on the time invested in the class and will give you the opportunity to formulate your questions before coming to class. Attempt all the homework problems and don't look up the answer until you have struggled with the problem for quite some time. It is very easy to fool yourself into thinking you understand something because you can follow the instructor or a solutions manual when a problem is worked. That is trivial compared to starting with a cold, blank sheet of exam paper. I urge you to form a study group and work problems with your fellow students. If you have problems, see me before they become big problems. Remember, I'm here to help.

Math 1113 Homework exercises
from Algebra & Trigonometry, 8th edition by Michael Sullivan.

NOTE: NC means No calculator, C means the TI-89 Calculator is allowed.

Note: Most chapters in the text end with Review Exercises. Although these review problems are not assigned below, students are strongly recommended to do these review problems.

- *5.1 p. 340 NC: 11, 13, 17-18, 20, 23, 29, 31, 39, 41, 45, 47, 61-65, 67
5.2 p. 352 NC: 1-20, 23-28, 29-39 odd, 41-49 odd. C: 53
5.3 p. 366 NC: 1-6, 7-33 odd, 41, 45, 47. C: 49, 51
5.4 p. 373 NC: 1, 2, 3-33 odd, 41-47 odd. C: 53
- 7.1 p. 513 NC: 1-22, 35-48, 119-121, 125. C: 23-33, 59-83 odd, 95-105 odd, 106, 111
7.2 p. 525 NC: 1-10, 11-37 odd, 41, 45, 49, 55-59 odd, 67, 69, 79-82
7.3 p. 536 NC: 1, 3, 5, 17-27 odd, 55. C: 2, 29-45 odd, 59, 61, 65, 67, 74, 75
7.4 p. 548 NC: 1-14, 17, 19, 33-103 odd, 109, 111, 113
*7.5 p. 557 NC: 1-19, 21-78 all, 79-85 odd
*7.6 p. 570 NC: 1-38 all, 43, 46, 49, 52, 55, 58, 61, 64, 67, 70, 73, 76, 79, 93, 98
*7.7 p. 579 NC: 1-16, 17, 20, 23, 26, 29, 32, 35, 38, 45, 47
7.8 p. 589 NC: 1, 3-27 odd
- 8.1 p. 611 NC: 1-7, 13-20, 22, 23, 37-52, 53-67 odd. C: 25-35 odd.
8.2 p. 618 NC: 1-8, 9-29 odd, 34-44 even, 57-65 odd. C: 45-53 odd.
8.3 p. 625 NC: 1-8, 9-31 odd, 32-56 even, 57, 58, 63, 66, 69-75 odd, 76, 79-83 odd, 89, 92, 99, 101.
8.4 p. 634 NC: 1-15 odd, 20-34 even, 37, 45-75 odd, 80, 81-95 odd
8.5 p. 643 NC: 1-6, 7-27 odd, 43, 44, 47-54, 58-64 even, 69-79 odd, 91, 96.
8.7 p. 653 NC: 1-6, 7-13 odd, 14, 18, 22, 26, 27, 31-39 odd, 53-59 odd. C: 41, 44, 47, 49, 63, 66.
8.8 p. 661 NC: 5-7, 9, 12-15, 19-20, 23, 29-41 odd, 48, 52. C: 54, 57, 60, 63, 67
- 9.1 p. 673 NC: 1-8. C: 11-21 odd, 25, 27, 29, 33.
9.2 p. 682 NC: 1-8. C: 9-33 odd, 37, 39, 41, 47.
9.3 p. 689 NC: 1-8. C: 9-31 odd, 33, 35, 39.
9.4 p. 694 NC: 1-4. C: 5-29 odd, 33, 35, 37.
*9.5 p. 704 NC: 1-4. C: 5, 9, 13, 17, 33
- 10.1 p. 720 NC: 1-18, 19-49 odd, 55-62. C: 83
10.3 p. 744 NC: 1-10, 11-59 odd
10.4 p. 755 NC: 1-14, 15-51 odd, 61, 63. C: 65, 67, 71
10.5 p. 763 NC: 1-6, 7-25 odd C: 27-37 odd
- 12.1 p. 847 NC: 1-6, 7-39 odd, 41, 45, 49, 53. C: 55, 59, 63, 67.
12.2 p. 862 NC: 1-4, 5-35 odd, 37, 41, 45, 49, 53, 57, 63. C: 73, 79.
12.3 p. 873 NC: 1-4, 5-29 odd, 33, 37, 41, 43.
12.4 p. 889 NC: 1-6, 7-27 odd, 29, 31, 35, 41, 43, 51. C: 65, 69, 71, 73.
*12.6 p. 904 NC: 1-4, 5, 9, 13, 17, 21, 25, 33, 41, 57 C: 63, 65, 67, 69.

* Assignment has been modified from standard departmental assignment.