MA-115 Course Description (F,05)

Course: **Precalculus** Meets MWThF at 3 p.m. in WS-1705.

Instructor: Bob Myers New Science Facility NSF-1135 Office hours are on my door and my home page.
Home Phone 249-1137 Office Phone 227-1610 E-mail Address rmyers@nmu.edu

Text: Precalculus: Mathematics for Calculus, 4th Edition, Stewart, Redlin & Watson.

Prerequisites: MA-105 passed with a C– or better, or equivalent.

Course Description: As the name implies, the primary purpose of this course is to prepare you for the study of calculus. The course assumes that you have a good foundation in algebra. The course will include some selected topics from algebra, but its primary emphasis will be on the study of trigonometry and analytic geometry. Since the goal is to prepare you to study calculus, both theory and applications which might arise in calculus will be stressed. You will be expected to understand where formulas come from and, in some cases, to derive the formulas yourself.

However, mastering formulas and procedures for solving routine problems (the so-called "plug-and-chug" mathematics) is not sufficient. You are also expected to learn to do non-routine, multi-step problems -- problems that are not just variations of worked examples -- that involve the use of the formulas and methods of algebra, trigonometry and analytic geometry. And you'll be expected to write up your solutions to such problems in a mathematically acceptable form.

For the actual content of the course, see the sections listed in the Tentative Schedule on page 3.

This is a Division III mathematics course in the Liberal Studies program. The students who complete this course should be able to demonstrate a basic understanding of mathematical logic, use mathematics to solve scientific or mathematical problems in college classes, express relationships in the symbolic language of mathematics, and appreciate the role of probability and statistics in analyzing natural phenomena.

Assignments: I'll give you an assignment sheet at the beginning of each unit. Reading and problems will be assigned for each day. However, sometimes the classroom activities might lag behind the assigned material. If so, you'll have to adjust things accordingly. I expect the average student to do between one and two hours of outside study for each hour of class time.

Please note the time expectation outside of class. Most class time will be spent on my telling or showing or explaining things -- hopefully with your involvement. Real learning, however, will occur when you use the day's class experience as you read the text, work on problems, transcribe your notes, relate new ideas to what you've previously learned, etc. Someone once said that a teacher can provide an explanation; the student must provide the understanding. For the most part, you'll get explanations in the classroom; your understanding will most often occur when you study outside of class.

Because class time is limited, not everything you're expected to learn will be explained in class. I urge you to make use of other resources. Here are some such resources: obvously, read the text; use the Math Lab (See below for a description of the Math Lab.); consult other texts (many are available in the Math Lab and can be checked out over-night); correspond with your classmates via phone or e-mail; form study groups; correspond with me via phone or e-mail; or visit me in my office. You should develop regular study habits. I suggest you do the day's homework as soon as possible after class, possibly in the Math Lab.

Just as you had to memorize the multiplication tables in grade school before you could do other things in arithmetic, there are some things in this course that will have to be memorized as well. I will tell you explicitly what these things are when we encounter them.

Also, you will have to work quickly and neatly on tests and quizzes. (There will be no partial credit if your work is sloppy.) This requires practice outside of class, so do all (or most) of the assigned problems in the same neat

manner that you would have to do them on tests. Working together in this class is encouraged but ultimately you should write up all the problem solutions yourself. (For collected assignments, you may talk with others about the problems but the work you submit must be substantially your own. The final write up must be entirely your own.)

Math Lab: A special room, WS-3810, has been set aside as a mathematics study room. There will be a tutor there to answer questions. The Lab will be open most weekdays from 9 am to 4 pm. **Please note**: The role of the Math Lab tutor is to provide help when the instructor is unavailable. A tutor can answer questions about the material or about problems, but s/he cannot be expected to teach you the material nor to show you in detail how to solve problems. In particular, you cannot ask the tutor to solve problems for you that you must turn in as a graded homework assignment.

Attendance: Required. At most four unexcused cuts are permitted. Quizzes and tests must be taken at their scheduled times. No makeup exams will be given (and no late assignments will be accepted) except in cases of utmost gravity. In such a case, you must notify me **before** the exam that you will be missing.

Calculator / Computer Algebra System (CAS): In the past, a graphing calculator was required for this course. Since you now have your own laptop computers, the Math Department has provided you with a copy of the CAS called TI-Interactive which is installed on your computer. You use the CAS in much the same way that you use a graphing calculator. Since classroom activities will often involve using the calculator, you will have to boot up your computer when you come to class and have the TI-Interactive program immediately available.

Many of you have probably used graphing calculators in the past and you may already have your own calculator. **If you have a graphing calculator, you should bring it to class** since it is much more convenient to use than the CAS. If you decide to buy a graphing calculator, the Math Department recommends the TI-83, TI-85 or TI-86 which are available in the NMU Bookstore and at various local stores.

You will be expected to use your CAS or your calculator when taking tests.

Graded Work: There will be quizzes, some unannounced, and there will be some collected homework. There will also be six regular exams and a comprehensive final exam. There will be opportunities for extra credit (EC) throughout the semester.

Note about Exams: In the past, I've permitted students to take up to two hours to do the regular exams and I will do so again this semester. These exams will be given in whatever classrooms I can find that will be available for a two-hour block. I'll tell you the room location the day before the exam. The exams will be given from 2 to 4 or from 3 to 5. If this would not work for you, please ask me about other arrangements.

Course Grades: There will be six "Unit" grades, each based on a weighted average of your quiz, homework and regular exam scores plus EC points you've earned during that unit. Your "pre-final average" is the average of these unit grades. The final exam will count either 20% or 50% of your course average, whichever will be more beneficial to you. (Thus, your course average will be the higher of these two numbers

course avg = 80%·(pre-final avg) + 20%·(final exam score)

course avg = 50%·(pre-final avg) + 50%·(final exam score).)

Proviso: For the second option to apply, you must take all the hour exams and you must satisfy the attendance requirements. Also, the second option will apply if you fail to take the final exam.

The lower cutoffs for A-'s, B-'s, etc. will about be 90%, 80%, 70%, and 60%.

For your information, 274 students have taken this course from me from F,97 thru F,04. The distribution of their grades: 13% A's; 23% B's; 23% C's; 10% D's; 10% F's; 21% W's. At least 104 of those who were successful in MA-115 went on to take Calculus I. About 83% of these students were successful in Calculus.

Tentative Schedule: (The actual test dates will be within a day or two of those listed here.)

Content	Test Date	Content	Test Date
Selected topics from Chapters 1 – 4.	Fri, 9/23	Sections 7.1 – 7.5	Thurs, 11/3
Geom. Review and Chapter 6	Wed, 10/5	Sections 9.1,2,8 Supplementary problems.	Thurs, 11/17
Chapter 5	Thurs, 10/20	Sequences and series.	Wed, 12/7

Final Exam is scheduled for Mon, 12/12.

Further Notes: Bring your text, computer (or calculator) and notebook (for your class notes and homework solutions) to every class, starting Wednesday, the second class meeting. All tests, quizzes and homework are to be done in pencil.

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 2001 C. B. Hedgcock (227-1700; TTY 227-1543). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state and University guidelines.

Information Card: Please answer the questions below on the index card. Number your answers as indicated. **Be sure to answer 11.**

Front

1. Name 2. Year in College
3. Major 4. Minor
5. What previous math courses have you taken in college and what grades did you get in those courses?
6. What math courses did you take in high school and approximately what grades did you get in those courses?
7. If you're repeating this course, when did you take it and what was your grade?
8. What additional math courses do you plan to take in college?

Back

9. Why are you taking this course?
10. Briefly, what are your career plans?
11a. Do you have a graphing calculator? If so, what kind?
b. If you have a calculator, are you [very familiar, somewhat familiar, totally unfamiliar] with its use?
c. If you don't have one, is there some kind of graphing calculator that you know how to use? If so, what kind and how competent are you at using it?