MA-161 Course Description (F,07)

Calculus I: Meets Mon thru Fri at 9 a.m. in WS-1705.

Instructor: Bob Myers New Science Facility NS-1135 Office hours are on my door and on my home page.
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Text: Calculus, Edition 5e, (This is the early transcendentals, single variable version.) James Stewart

Prerequisites: MA-115 passed with C- or better, or equivalent.

Course Description: This introductory calculus course contains a brief review of precalculus mathematics, limits, the derivative, differentiation rules, applications of the derivative, the definite integral, the Fundamental Theorem of Calculus, and an introduction to the applications of the integral. The emphasis throughout this course is on the meaning, both theoretical and applied, of the concepts of calculus. Most important, you will learn to apply the concepts and techniques of calculus to "real world" problems.

This course satisfies the Foundation of Natural Science/Mathematics requirement. 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 mathematics in analyzing natural phenomena.

Assignments: Reading and problems will be assigned daily or for blocks of time. I expect the average student to do about two hours of outside preparation 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, and so forth. 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: obviously, 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.

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 five 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. Times for quizzes and homework submission will usually be announced in class. Test dates are given on the tentative schedule on the next page.

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 for your computer. You can have TI Interactive installed on your computer by asking someone at the Help Desk to do it for you. You use TI Interactive 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, -84, -85, or -86 which are available in the NMU Bookstore and at various local stores. You might be able to buy a used calculator if you post a "Wanted" note on the bulletin boards in various places on campus.

Of the two, a graphing calculator is preferable for reasons I'll explain in class. You will be expected to use your your calculator or your CAS when taking tests.

Graded Work: There will be quizzes, some unannounced, and there will be some collected homework. There will also be five 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 8 to 10 or from 9 to 11. If this would not work for you, please ask me about other arrangements.

Course Grades: There will be five "units" of study, at the end of each of which there'll be a unit exam. During the unit, there will usually be quizzes and collected homework. There will also be opportunities for "extra credit" (EC) -- extra problems, classroom presentations, writing up your solution to a problem for the class, etc. A unit grade is the weighted average of all your graded work during that unit. Your pre-final average is the weighted average of the five unit grades. The final exam will count either 20% or 50% of your grade, whichever will be more beneficial to you. Thus, your final average will be the higher of these two numbers

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

final 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%. Plus and minus grades will be given.

For your information, 300 students have taken this course from me since F,96. The distribution of their grades: 18% A's; 29% B's; 20% C's; 6% D's; 7% F's; 20% W's.

Tentative Schedule:

Content	Test Date	Content	Test Date
Selected Review Topics from Ch 1 & Appendix D. Also some limit concepts from Ch. 2	Fri, 9/14	Applications of the Derivative. (Much of Ch 4)	Fri, 10/26
Concept of Derivative. (Sections 2.7 - 3.8, 3.10)	Wed, 10/10	Concept of Integral (Sections 5.1 - 5.5)	Tues, 11/27
		Applications of the Integral (Sects 6.1, 6.2, 6.5)	Wed, 12/5

The Final exam is scheduled for Thurs, 12/13.

Further Notes: Bring your text, calculator and notebook (for your class notes and homework solutions) to every class, starting Tuesday, 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 by: coming into the office at 2001 C. B. Hedgcock; calling 227-1700; or e-mailing disserv@nmu.edu. 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?
12. E-mail address.