"If you want to understand nature, you must be conversant in the language in which naturespeaks to us." -- Richard Feynman

Contact information and office hours

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phones
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Blackboard http://ecourses.wku.edu/

office hours
(tentative)
MF: 12:40 - 1:35 in TCCW
TR: 12:45 - 2:05 in WSC
W: 10:20 - 12:25 in TCCW

I’m around a lot more than the listed office hours. If you want to see me at other times, feel free to drop by, or let me know and I can set up a time. If I am not in my office (especially if I am supposed to be there), look for a note on my door; it should say where I am or when I'll be back. Leave a note on my door if you want me to call you. I encourage you to use e-mail; for fastest response, use wku.edu during “normal business hours,” insightbb.com otherwise. If you need help, I will find time to meet with you.

Talking to me early is important if you are having problems. Remember Rule #1!
Blackboard
Blackboard will contain announcements, HW and other assignments, dates and review sheets for exams, etc. Visit it often, especially if you miss a class (which you won't do except in the most extraordinary circumstances, of course). You log in with your ordinary WKU email username and password. Your grades will be available online eventually, but not via Blackboard.
Prerequisites
In order to take M227, you must have completed M126 (or an equivalent Calculus I course elsewhere, or AP Calculus credit), with a grade of C or higher. If you earned less than a C, then you must retake M126. The Department of Mathematics adopted this policy in order to maximize each student's chances of succeeding in M227.
Course Goals
Mathematics is the study of patterns. Mathematics is NOT just a collection of facts and formulas. This course continues the introduction to the fundamental ideas of differential and integral calculus, and to the fascinating way that those two branches are unified. Many of these ideas have been around for 300 years or so; far from being "cut and dried", however, new insights into these ideas, and new applications of them, continue to be discovered. Mathematics is at the foundation

Course Outline of science, and calculus is one of the pillars of modern mathematics.

Text and approximate syllabus
Single Variable Calculus — Early Transcendals, by Jan Rogawski, W. H. Freeman and Co. We will cover most or all of Chapters 6 — 11.

Course materials
Department of Mathematics policy says you must have a graphics hand calculator, say at the level of the TI-83 or higher; bring it to class with you every day (I will not have a calculator you can borrow, and you may not share calculators on quizzes or tests). You are welcome to use a calculator capable of symbolic manipulation such as the TI-89. However, outside of class you will have available to you a tool much more powerful than the calculator: Mathematica (see below).

Diversity
If an animal or plant species lacks genetic diversity, then it will become susceptible to disease. The same is true socially: diversity is important! I believe that all students can learn mathematics, regardless of gender, age, color, ethnicity, sexual orientation, cultural or religious inclinations (or lack thereof), and nationality. Certainly, I want all of my students to achieve their potential, and I will treat all students fairly with regard to all of those characteristics. I do especially encourage members of groups who historically have been excluded from science and mathematics, such as women and African Americans. I also recognize diversity in learning styles: what works for one student to learn a particular idea, may not work as well for another. In addition, I encourage you as a student to be flexible, and to consider the advantage of diversity in approach; be open to new learning styles and new ways of learning!

Course format
A typical class will include both lecture and discussion. The proportion of each will vary and will depend to some extent on you. There always will be some time for questions on the previous homework, and you are always free to ask questions during class. In addition, we will be addressing some questions via a Discussion Board forum on Blackboard (see below). Some of your work will be done in small groups.

Homework
Many things are important in the learning process, including reading the text (yes, you do need to read it!), listening and participating in class (I will ask you lots of questions also!), and so on. But the only way you will really learn what's going on is by sitting down and solving problems. Here are some things to remember about homework problems:

• The "answer" is not what's important. I will assign lots of problems. It's not because I want to know what the answer is. It's not even because I want to know if you know what the answer is.
The process is what counts. The problems are there to help you learn the process, and I want to know if you understand the process.

- Some of the problems will be "drill" – similar problems with slightly different ingredients. If these seem boring and hard for you, then you probably haven't learned the process well enough yet. When they get boring and easy, then you have done enough of them.

- If you are not sure about a problem, you need to ask about it—Discussion Board, in class, in my office, a classmate, a group partner, or whatever. Ask sooner rather than later; otherwise, it likely may come back to haunt you. Remember Rule #1!

From the large number of HW problems assigned, I will sometimes designate a smaller number that I will collect and grade. Those are the problems you should work last, not first. It's not just the answer that counts! Write for your peers, not your professors!

Exams and quizzes
We will have many short quizzes. There will be four in-class exams, plus the final. Tentatively scheduled dates: Tue 17 Feb, Fri 6 Mar, Tue 7 Apr, and Fri 24 Apr. Note that Fri 6 Mar is the day before Spring Break; don't make travel plans that conflict with it. The final exam is most definitely cumulative; however, the in-class exams are cumulative only to the extent that they have no choice.

Final exam
M227-002: 10:30 - 12:30, Tue 12 May
M227-003: 10:30 - 12:30, Mon 8 May

Additional features
Mathematica
Among the many tools we will use in revealing the secrets of calculus, one of the most useful will be the astonishingly powerful software known as Mathematica. Not only does Mathematica relieve us of the need for some types of ugly, tedious "grunt" work; it also enables us to do many things that would be entirely impossible by hand. Overall, Mathematica allows us to ask "What if ...?", and obtain an answer immediately. You will be encouraged to use Mathematica to check work done by hand, and required to use it on some assignments. At WKU, we are in the happy position of having Mathematica available in every computer lab (Student Technology Center) on campus! This includes Helm Library, which is open until midnight every night, and Mass Media & Technology Hall, which is open 24/7. Even better, you can download the entire Mathematica program—for free—onto your own computer. Just go to http://www.wku.edu/infotech/, look under Academic Technology, and click on Software Requests/Downloads.

Discussion Board
Rule #1 is a big deal, and I hope that you will take it as seriously as I do. On the other hand, it sometimes happens that valuable class time is spent on problems about which only a very few students have questions. In an effort to avoid some of this, we will have a regular Discussion Board forum (called "HW Headaches", or something similarly corny or catchy) where you may post questions about a HW problem, or a textbook example, or about something we did in class that wasn't clear, or .... Who will respond to those questions with a hint, or an explanation, or a follow-up question? Maybe I will, but preferably one of your peers will! In fact, participation in this will be part of the HW process, and will count toward your grade; details will come later.
Math in the News
There will be occasional assignments, group or individual, based on current events in the real world. These Math in the News assignments will be included as part of the HW grade.

Slogans
** "It ain't so much the things we don't know that gets us in trouble, it's the things we know that ain't so." (attributed to Will Rogers, Mark Twain, Artemus Ward, among others). Plan on:
• reviewing the things you know
• learning the things you don't know that you need to know
• unlearning the things you know that aren't so
** Mathematics is not a spectator sport. People learn best by doing.
** It's not just the answer that counts. See the discussion under HW above.
** Write for your peers, not for your professors. Most good solutions require some English to make it clear what’s going on. Your goal should be to make it clear to someone who knows less about what’s going on than you do.

How much work?
The amount of work you will have to put in depends on a combination of your abilities, your prior math background, and the grade you want to achieve. For best results, most people should count on spending, on the average, at least two hours outside of class for every hour in class.

Cooperation
I encourage you to discuss and work together on the homework; this can be one of the best ways to learn. Copying is a silly waste of time, and is not acceptable. I strongly encourage you to find folks with whom you work well, and work together; that includes studying. In addition to whatever study groups you form yourselves, some of your work will be done in assigned small groups. Whenever you do work as a group, then hand in one copy, with the names of all group members. The composition of the assigned groups will change from time to time; some will work better than others.

Cheating
Cheating on any student work (homework assignments, quizzes, tests) may result in a failing grade; this is WKU policy. Turning in a solution that you don’t understand is a form of cheating.

Plagiarism is a form of cheating. For information on plagiarism and how to avoid it see http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml. Copying and pasting from the internet (or any other source) without giving due credit is cheating. Turning in a program output that looks correct, but is not generated by your program is cheating. It is cheating to discuss a quiz or test with students in another of my M227 sections before everyone has taken it.

Grading scale
90%, A; 80%, B; 70%, C; 60%, D.

Grades
Your course grade will be determined approximately by the formula:
HW + Quizzes + Regular exams + Final exam = Total
24% + 16% + 40% + 20% = 100%
Attendance
If you get seriously ill or have a death in your immediate family, I will gladly help you catch up. On the other hand, if you are repeatedly absent without a justifiable reason, you will receive a failing grade in the course. [How many is too many? Five.] There are no make-ups for quizzes or exams. I will drop the lowest quiz and lowest homework from your average.

Classroom courtesy
Please turn off cell phones, or else put them on the “stun” setting. No cell phones, iPods, MP3 players, pagers, etc, during quizzes and tests.

Students with disabilities
Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services, Room A200, Downing University Center. The telephone number is 745-5004, TTY 745-3030. Per university policy, please DO NOT request accommodations directly from the instructor without a letter of accommodation from the Office for Student Disability Services.

Questions:
Rule #1
There are no "dumb" questions! If you are confused or not sure about something, ASK! This is Rule #1. I take it very seriously, and I hope that you will too.
"... mathematics offers special opportunities ... to learn the power of thought, as distinct from the power of authority. This is a very important lesson to learn, an essential step in the emergence of independent thinking."
--National Research Council, Everybody Counts, p. 4
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