Math 107-350/550 - Analytic Geometry & Calculus I **2nd Semester, '06-'07**
Policy handout for Sections 250 (10:30) and 350 (12:30)

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Textbook *University Calculus*, by Hass, Weir, & Thomas, ISBN: 0-321-35014-6.

You are welcome to drop by outside of office hours although I may be busy (in which case we can make an appointment), or out of the office (please leave a message; email is best).

Recitation Sections All sections meet on Tuesday and Thursday.

#'s	Time	Room	TA	#'s	Time	Room	TA
251	11:00–11:50	HENZ 107	Manoj Pathak	351	11:30–12:20	OLDH 208	Yanqiu Guo
252	11:00–11:50	HENZ 035	Michael Holm	352	11:30–12:20	M&N B7	Michael Holm
253	11:00–11:50	CBA 104	Mark Stigge	353	11:30–12:20	BURN 232	Mark Stigge
254	11:00–11:50	BURN 120	Joan Lubben	354	11:30–12:20	NH W185	Joan Lubben
255	9:30–11:20	OLDH 305	Silvia Saccon	355	11:30– 1:20	AND 145	Ela Celikbas

Course Summary The main goals of the course are to understand:

- techniques of integration (Chapter 7),
- applications of integrals (Chapters 6),
- series, convergence, and their applications (Chapter 8)
- polar coordinates (Chapter 9) and 3-dimensional space (Chapter 10), and
- vector-valued functions (Chapter 11).

In order to do this, and in particular, in order to use these ideas to solve problems, you need to have a thorough understanding of algebra, geometry, trigonometry, and the material from Math 106. You will need to review this material from time to time, in addition to learning new material.

Expectations Performance at a high level is expected. At a minimum, this means knowing the material from the prerequisite courses (especially Math 106!), reading the textbook before lectures, taking notes during lectures, and then doing the homework and reviewing your notes afterward.

Grading:

comprehensive final exam		200
three term tests	100 each	300
best seven quizzes	10 each	70
best eight homeworks	5 each	40
one project		60
gateway exam		80
total		750

Grade Scale

A+	712	B+	645	C+	560	D+	495
A	675	B	600	C	525	D	450
A-	660	B-	585	C-	510	D-	435

Grade Records These will be kept on Blackboard (`my.unl.edu`). Help for using Blackboard is available from this webpage. From time to time, check that your scores have been entered correctly.

Final Exam There is a common comprehensive final exam, on **Tuesday, May 1, 6:00-8:00 pm.** The rooms for each recitation section will be announced in the last week of classes. **Do not make plans that conflict with the final.**

Term Exams There will be three exams during the term, at the following times:

Wednesday, February 14, 6:00-8:00 pm
Wednesday, March 21, 6:00-8:00 pm
Wednesday, April 18, 6:00-8:00 pm

If at all possible, you should take the exams at these times. If you cannot take the exam at one of these times because of a scheduling conflict, please email me about alternative arrangements well in advance of the exam date. The rooms for each recitation section will be posted on the course webpage and announced in class before each exam.

Notice these dates are the day before the day listed on the generic Math 106 syllabus. The exam will still be a one-hour exam, although you have two hours to do it. The price for the extra time is that I expect you to write clear and intelligible answers—see the discussions of homework and the essay on the final page of the syllabus. Further, I will, when appropriate, ask you to check your work as part of a problem. This will be clearly stated in appropriate questions.

Homework You are expected to do most of the problems in each assigned section. I will list particularly important problems in class. Not doing the homework means you won't understand the course material at a level sufficient to pass the course.

Only a few problems will be collected each week. Each Friday, I will announce one or two problems, which will be collected **at the start** of the Tuesday recitation. The solutions are to be written up **carefully**, with all of the steps explained. Your calculations should have a purpose and that purpose (when not completely obvious) should be clearly stated. You are expected to make your calculations part of complete sentences with correct punctuation and spelling. Your solution should something like an example from the textbook, that could be understood by a nonexpert. **A poorly explained solution, even one with a correct answer, will not earn full marks.** For sample problems and solutions, look at the Math 106 homework problems on my Math 106 course webpage.

Quizzes A 10 minute quiz will be given each Thursday (except on exam weeks and the last week of classes). The quiz will cover the material of the previous week and will often (but not always!) be similar to the homework questions. Because quizzes have limited time, answers will not be held to the same standard of explanation as homework and tests. Nonetheless, it is in your interests to be as clear as possible.

Gateway Exam The gateway exam is a computer exam consisting of 7 questions. Grading is full credit, i.e., 80 points, for 6 or more right and 0 points for anything less. **You cannot use any kind of calculator on the gateway exam.** The first gateway exam is given on paper in your recitation section on **February 8**. The exam can be taken again online (but you can only take it at most once a day) in the Math Computer Lab (Avery 018) or the College Testing Center (Burnett 126-127). **The deadline for passing the gateway exam is Friday, March 2**. The labs are busy close to the deadline, so do not wait until the last week.

Most people take several tries to get full credit, so spend some time preparing for the exam. You can practice the exam an unlimited number of times at `calculus.unl.edu/edu/classes/math107/`.

Project The project is the solution to an open-ended multistep problem, formally presented. The project will be done in groups, which we'll organize later in the semester, after adds & drops are done. Everyone in the group should contribute to the project. It will require several group meetings to find a solution to the problem and to work out how to explain your solution clearly. Your group should write up a short essay explaining the problem, the mathematics you used to solve it, and the significance of your solution. More detailed advice will be handed out with the project.

Makeups Makeup exams will **only** be given only in extreme circumstances or for University sanctioned reasons. Within reason, be prepared to provide supporting documentation and, if possible, let me know **beforehand**. Since at least two quiz and two homework grades will be dropped, there is no makeup for the first homework or quiz that you miss. Save the documentation and if you miss another (for a University sanctioned reason), then I'll arrange a makeup for the second and subsequent ones.

Attendance "Students are expected to attend all lectures, recitations, quizzes, and laboratories regularly. The University has no regulation which permits cutting classes." (2006-2007 Undergraduate Bulletin, page 11). If you miss a class, it is up to you to learn that material. While I am glad to discuss such material with you, I would encourage you to read the relevant section in the text and look at a friend's notes before coming to me.

Calculators A graphing calculator is required; the TI-84 and TI-86 are both fine. If you have something else, it may be OK—check with me. You can use calculators as you like on quizzes and exams but be warned that quizzes and especially exams will be written to test your understanding of the material, not your ability to push buttons. **Cell phone calculators are not allowed during any test, quiz, or exam**.

Extra Help You can: 1) talk to me, 2) consult with the members of your group, 3) visit your TA during their office hours, 4) look at the material on the course web page, and 5) visit the Math Resources Center (Avery 013B; Hours: 12:30-8:30 Monday-Thursday, 12:30-2:30 Friday, 1-5 Sunday) There are many resources on campus but it's up to you to decide to seek them out. I am glad to help you to find them.

Academic Dishonesty Academic dishonesty includes cheating on any test, plagiarism, fabricating an otherwise justifiable excuse to avoid or delay timely submission of academic work, and helping or attempting to help another student commit academic dishonesty. For a comprehensive list, see Section 4.2 of the Student Code of Conduct. In particular, plagiarism includes any one of the following acts: "(1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words" (Hacker, A Writer's Reference, 4th Edition, p. 83).

For a student found to have committed an act of academic dishonesty, I can, and will, lower grades, up to giving an F in the course, in addition to referring the case to the Judicial Officer. Both the determination of academic dishonesty and the penalty can be appealed (again, see Section 4.2 of the Student Code of Conduct).

Department Grading Appeals Policy: The Department of Mathematics and Statistics does not tolerate discrimination or harassment on the basis of race, gender, religion, or sexual orientation. If you believe you have been subject to such discrimination or harassment, in this or any other math course, please contact the department. If, for this or any other reason, you believe your grade was assigned incorrectly or capriciously, then appeals may be made to (in order) the instructor, the department chair, the department grading appeals committee, the college grading appeals committee, and the university grading appeals committee.

University-level Mathematics

University mathematics classes do not match everyone's vision of what a math class "should be like". To get you off on the right foot, I want to describe an extreme approach, almost a parody, of how to learn math, explain why it is inappropriate for this class, and then outline how you should approach learning mathematics at this level.

Rote Learning. Taking an extreme position that no person actually believes (I hope), learning math is about turning yourself into a kind of glorified robot. The "highlights" of this approach are:

- Every problem you are asked to solve is easily recognized to be a certain type.
- For each type, there is exactly one mechanical process to solve the problem.
- The teacher describes the process and does several examples at the board and then you do a bunch more for homework.
- The solution to a problem is a string of equations, with no explanation or motivation, which can be understood only by someone who already knows how to solve the problem.
- Checking a solution means looking at the answers in the text or in the solution manual.
- The test contains yet another problem of the same type, ideally, a homework problem with the numbers changed only slightly, if at all.

While this approach is comfortable and safe for both students and teachers, it does not describe how you'll be using mathematics in any kind of engineering, scientific, or technical job. If your boss could look up the answer in a book, she would instead of paying you to solve the problem. If your boss cares enough about the problem to ask you to solve it, she's going to want a clear explanation of why your solution is correct, and that explanation will have to be intelligible to someone who does not already know how to solve the problem, in particular, to your boss. Of course, she'll also want a solution that is clear and to the point.

The same principles apply to using calculus in higher-level courses.

Understanding. Carrying out computations correctly is an important part of mathematics and some of the "highlights" above are essential to learning to compute ("How do you get to Carnegie Hall?"). But computations are not **all** of mathematics and, at the university level, the other aspects of mathematics become very important. In addition to computing correctly, you will be asked to:

- know precise definitions and recognize when a definition is, or is not, satisfied,
- know precise statements of theorems and recognize a theorem can, or can not, be applied,
- understand how methods work and when they can or cannot be applied,
- show the assumptions you are making and how you are applying them to a problem,
- explain your reasoning in a solution and do so concisely and clearly,
- check your answer using independent reasoning rather than referring to authority, and
- apply your knowledge to new situations (perhaps the most important of all).

You should understand why you're doing what you're doing and you should show that understanding in presenting your solution. The difference is much like that between following a recipe and knowing how to cook, or between playing scales and playing jazz.

Calculus is a crucial course for almost everyone who takes it. A better understanding of the material which help you to get better grades not only in this class but in all later classes that depend on calculus.

> Learning math is a lot more like learning a language than most students realize. ... Understanding the broad outline isn't good enough. You have to be fluent, conversant to such a depth that you just automatically know what to do.
> —from *How to Ace Calculus: The Streetwise Guide.*