Math 106-150 - Analytic Geometry & Calculus I **2nd Semester, 07-08**

Policy handout for Section 150 (9:30)

Instructor Prof. Allan Donsig

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Office Hours: 10:30.-11:30, Monday, Wednesday; 2:30–3:30 Friday

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 9:30–10:20 Tuesday and Thursday.

#	Room	TA	#	Room	TA
151	M&N B6	Katherine Field	154	OldH 304	Nathan Corwin
152	M&N B7	Yanqiu Guo	155	HaH 134	Kelsey Johnson
153	M&N 203	Anatoly Zlotnik			

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

- the various kinds of limits and their uses (Chapter 2),
- derivatives and how to use them (Chapters 3 and 4), and
- integrals and how to use them (Chapter 5 and 6).

In order to do this, and in particular, in order to apply integrals and derivatives to solve problems in science and engineering, you need to have a thorough understanding of algebra, geometry, and trigonometry. You will probably 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, 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 ten quizzes	10 each	100
one project		40
gateway exam		60
EDU homework		30
total		730

Grade Scale The normal grading scale cutoffs (as percentages) are given below. The scale may be adjusted slightly at the end of the semester.

A+	96	B+	86	C+	76	D+	66
A	92	B	82	C	72	D	62
A-	89	B-	79	C-	69	D-	59

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.

Bonus Points To give you an incentive to keep working and learning all the way through the course, you can earn bonus points for improving your score from one test to the next. After an term test, if you have improved your score from the previous one, we'll add half of your improvement to the final score for that exam. For example: if you score 70 on the first exam, 80 on the second exam and 85 on the third exam, at the end of the term you will get a 5-point bonus on the second exam and a 3-point bonus on the third exam. You will not lose any points if your score goes down on subsequent exams. If your final exam score divided by 2 is greater than your three previous exams, we will add a 10-point bonus to your point total. In the example above, if you scored 171 on the final, you would get the 10-point bonus.

Final Exam There is a common comprehensive final exam, on **Thursday, May 8, 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:

Monday, February 11, 6:00-7:30 pm
Wednesday, March 26, 6:00-7:30 pm
Wednesday, April 23, 6:00-7:30 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 talk to 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.

The exam will be written for one-hour but you have an hour and a half to do it. The price for the extra time is that I expect you to write clear and intelligible answers—see 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. You should do your homework in a separate notebook, distinct from your class notes.

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 be similar to, but not identical to, the homework.

Homework Quizzes From time to time, in recitation, there will be a homework quiz. This is a very short quiz in which you write out the solution to a homework problem from your homework notebook on the quiz paper. There will not be enough time to work out the problem if you haven't already done it.

The best 10 quizzes (homework or regular) will be used in computing your final grade.

On-line Homework Once or twice a week, there will be a short assignment which you work on-line. For more information, look at the course webpage. I expect there will be thirty on-line homeworks, each worth one point.

Gateway Exam The gateway exam is a computer exam consisting of 10 questions. Grading is full credit, i.e., 60 points, for 8 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 **March 6**. The exam can be taken again on-line (at most once a day) in the

MathLab (Avery 018) or the College Testing Center (Burnett 126-127). **The last day to take the gateway exam is April 3**. The labs are busy close to the deadline, so don't wait!

Many 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/math106/`.

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. It will probably require several meetings for your group to find a solution to the problem and to present that solution clearly and understandably. Everyone in the group should contribute to the project. Your group should write up a short essay explaining the problem and the mathematics you used to solve the problem and then discussing the significance of your solution. More detailed advice, including a grading scheme, will be handed out with the project.

Makeups Since some quiz and homework grades will be dropped, there are no makeups for quizzes and late homework is not accepted. 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**.

Attendance "Students are expected to attend all lectures, recitations, quizzes, and laboratories regularly. The University has no regulation which permits cutting classes." (2007-2008 Undergraduate Bulletin, page 12). 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. Calculators that can do symbolic algebra, such as a TI-89 or TI-92 are **not allowed**. If you are not sure if a particular calculator is allowed, check with me. **Cell phone calculators are never 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; 12:30-8:30 Monday-Thursday, 12:30-2:30 Friday, 1-5 Sunday)

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! 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:

- 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 are doing what you are doing and you should show that understanding in presenting your solution.

The difference is much like that between someone who can follow a recipe and someone who knows how to cook, or between someone who can play scales and someone who can play jazz.

Calculus is a crucial course for almost everyone who takes it. This approach will give you a better understanding of the material which help you to get better grades not only in this class but in all subsequent 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.*