

# First-day Handout

## Spring 2012

### M 408N – Differential Calculus for Scientists MWF 1 – 2, CPE 2.214 (55335, 55340, 55345)

**INSTRUCTOR:** Dr. Olena Bormashenko, RLM 10.110, [olenab@math.utexas.edu](mailto:olenab@math.utexas.edu)

**OFFICE HOURS:** Monday 4:00-5:30, Thursday 2:00-3:30, or by appointment.

**WEB PAGE:** [www.math.utexas.edu/users/olenab](http://www.math.utexas.edu/users/olenab)

This course consists of three lectures and two discussion sessions per week. The lectures are given by the instructor and are attended by all students enrolled in sections with any of the three unique numbers above. A graduate Teaching Assistant (TA) leads the discussion sessions. New material will be covered in each lecture, and during your discussion sessions you will have the opportunity to further your understanding of that material. You are expected to attend all five hours per week. Your unique number determines which of the three discussion sections is yours, as is indicated in the table below.

Discussion Section				Teaching Assistant for all Discussion Sections	
Unique Number	Day	Hours	Building Room	Rory Rother	<a href="mailto:rrother@math.utexas.edu">rrother@math.utexas.edu</a>
55335	TTh	1:00-2:00	RLM 6.118	RLM 12.132	
55340	TTh	3:30-4:30	RLM 5.120		
55345	TTh	5:00-6:00	RLM 6.120	Office Hours: Tue. 2:00-3:00, Wed. 2:30-4:30	

**TEXT:** *Calculus: Early Transcendentals*, by Stewart, Seventh Edition.

**OBJECTIVES OF COURSE:** Successful students will leave this course understanding the basic concepts and having mastered the computational skills of differential calculus. Topics include a review of exponential, logarithmic and inverse functions (Ch. 1); tangents and velocity, limits and limit laws, continuity, limits at infinity, the definition of the derivative, at a point and as a function (Ch. 2); derivative rules, derivatives of polynomials, exponential and trigonometric functions, the chain rule, implicit differentiation, derivatives of logarithmic functions, rates of change in science, related rates, and linear approximation (Ch. 3); extrema, the Mean Value Theorem, how derivatives affect graphs, indeterminate forms and L'Hospital's Rule, optimization, and antiderivatives (Ch. 4); areas and distances, the definite integral, and the Fundamental Theorem of Calculus. An approximate calendar of coverage may be found at <http://www.math.utexas.edu/users/olenab/s12-408NCalendar.pdf>. This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life.

**RESTRICTIONS AND PREREQUISITES:** This course is restricted to students in the College of Natural Sciences. The prerequisite for this class is a grade 70% or better on the ALEKS assessment, and there will be no exceptions made to this requirement. If you do not meet this prerequisite, you will be dropped from this class around the 4<sup>th</sup> class day.

**OPTIONAL MATERIALS:** It may be helpful to check the accuracy of your homework with a calculator. However, work the problems by hand, since *no calculators maybe used during exams*.

**GRADES:** On all work, your numerical average will be computed as a percentage: the number of points you earned divided by the number of points possible. It is unlikely that any grade will be curved. The percentages of each type of work that will be used to compute your final grade are given below. Your letter grade will be given based on your numerical average earned in the class, on a scale not stricter than the following: you are guaranteed a D for 60 or above, C- for 70 or above, C for 73 or above, C+ for 77 or above, B- for 80 or above, B for 83 or above, B+ for 87 or above, A- for 90 or above, and an A for 93 or above.

**DEADLINES FOR DROPPING A COURSE:** If you drop a class on or before February 1, the class will not show up on your transcript. If you drop a class after that date, the course will show up on the transcript with a "Q" grade. After April 2, it is not possible to drop a course except for extenuating (usually non-academic) circumstances.

**HOMEWORK** (10% of final grade):

As you are aware, you must learn math by doing math. The expectation is that your homework will require up to 10 hours per week of your time. It comprises 10% of your grade in order that you will be motivated to do it. However, doing or not doing assigned homework will have much more than a 10% effect on your grade!

While the attached calendar gives an idea of when each homework assignment will be due, the due dates will be determined by the date of the lecture in which I actually finish a section (see Text homework and Online homework below). You are responsible for knowing these dates.

**No late homework will be accepted for any reason.** As noted below, we will drop some of the homework scores to allow for legitimate reasons for not turning in an assignment (left it at home, computer crashed the night the Quest was due, ill with the flu, didn't get the assignment in time, didn't know the due date, did the wrong assignment, family emergency, etc.) *Please do not ask if we will accept a late assignment. We will not.*

**Text homework:** At the beginning of each lecture, we will collect all homework assignments due, and will grade selected problems. An assignment from a section of the book covered during lecture will be due at the beginning of the first lecture that follows. *In order to receive credit for an assignment, you must show all of your work, the homework paper must be stapled with no ragged edges (such as those on papers torn from a spiral notebook), your exercises must be well-labeled, neat, and in order, and your assignment must be turned in before the lecture begins.* During the discussion, you will work on one or more problems, given by the TA, which when completed and turned in to the TA will guarantee you half your homework score; if you miss a discussion, there is no makeup of this opportunity. There will be approximately 27 such assignments (one for each section of the book covered); the lowest 5 will be dropped and will not count towards your grade. This homework comprises 5% of your final grade. You may view homework assignments on my web page at <http://www.math.utexas.edu/users/olenab/s12-408NHomework.html>.

**Online homework:** Online homework will be assigned from each section of the text via the Web using the UT homework service, Quest; all answers and grades will be returned via the Web also using Quest. Assignments will be posted before the material is covered during lecture, and will be due at midnight following the first discussion session after the material is covered during lecture. There will be approximately 27 assignments (one for each section of the book covered); the lowest 5 will be dropped and will not count towards your grade. This homework also comprises 5% of your final grade. There will be a special Quest assignment (an initial math assessment) during the first few days of classes that will be treated as a homework assignment; please complete this assignment as carefully as possible. To pay for your use of Quest, there is a mandatory \$22 charge for this course that will need to be paid after the 12<sup>th</sup> class day (you will be notified). See the top of the screen at <http://www.ma.utexas.edu/services/administration/orientation/#questfee> for more information.

**QUIZZES** (10% of final grade): This class will be structured around in-class work. To test that you're doing this work, there will be frequent (probably weekly) quizzes on this material. The quizzes will be given in lecture, and cannot be made up, so come to class!

**EXAMS** (80% of final grade):

You must bring a valid photo ID to all exams. Notes, books, and calculators are not allowed during exams. There will be three exams in this class. Some of the questions on each exam will be multiple choice, like problems on the QUEST homework system, and some will require that you show your work, like problems from the text. The first two exams will be given during the normal lecture period, in the normal room, each covering about 1/3 of the course material. The third exam, which is the Final Exam, will cover the last third of the course material, as well as having a comprehensive component. Each midterm will comprise 25% of your final grade, and the final will comprise 30% of your final grade.

Exam I: Friday, February 17

Exam II: Friday, March 30

Final Exam: Friday, May 11, 9:00-12:00 noon

Notice that the Final Exam will be given during finals week, in a different room, which will be assigned later.

***You should carefully examine the exam dates above, since being available for these exams is a requirement for this course. In particular, if you miss the final exam, you will receive a grade of 0 for the exam.***

**STUDENTS WITH DISABILITIES:** Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259 or 471-6441 TTY.

**STUDENT CONDUCT:** Please come to class on time. If you will be late or need to leave early for some legitimate reason, please sit near the exit. Coming and going during class is distracting to your fellow students, and they do not like it; we know this because they complain about it. Please do not talk or otherwise disturb students in the class who are trying to learn. All computers, cell phones and other hand-held devices must be put away out of sight during class and during exams.

Cheating is dishonorable and disgusting. Keep in mind that most students are honest, and honest students do not like cheaters, and often report what they see. If you are caught cheating, you will be penalized as harshly as possible under the rules of UT. Do not cheat.

**ATTENDANCE:** This course is structured with the expectation that you will attend every lecture and discussion session, and your grade will benefit from your attendance. Of course, sometimes an absence is necessary. In such a situation, you should contact a classmate to get notes, due dates and other information for the class you missed. Please introduce yourself to and write the names and contact information of at least five classmates below.

- 1.
- 2.
- 3.
- 4.
- 5.

If you choose to miss class, **do not email or otherwise contact your TA or me to ask what material was covered during class, what the assignments are, when assignments were made or are due, what sections the exams will cover, or any other question that has been answered or will be answered during class.** I will not respond to such queries. If you miss class, accept responsibility for your absence without involving me.

**ADVICE:** You should think about this fact: I will write the lectures and lead the discussion in class, and will write the exam material (which is 80% of your grade). *Come to class.* Taking notes, including everything written on the board as well as my comments, is extremely important. I will pass on information not in the book, such as hints to help you remember necessary facts, and common errors and how to avoid them, and I will focus your attention on certain aspects of the material. If you do not write these things down, you will forget them. If you have to choose between listening and writing notes, write the notes – you will have a record that you can study at your leisure. In particular, *during the lectures I will tell you exactly what you need to learn in order to do well on the exams.* Studying your notes (with asterisks beside material I have emphasized) and working problems without assistance from the book and Quest will greatly assist you in doing well on the exams. Since I tell you what to expect on exams during the lecture, there will be no exam review during lecture. Also, *attend discussion;* you will get an advantage on your homework average. Moreover, the discussion is a place where you can get answers to questions and assistance understanding the material.

Drop-in tutoring (free) and private tutoring (not free) are available in the UT Learning Center in Jester A332 ([lifelearning.utexas.edu/](http://lifelearning.utexas.edu/)), as well as some free workshops and classes. If you need help, please avail yourself of this assistance. Both your TA and I have office hours, and are happy to meet with you. You should take advantage of this access – please come by during office hours if you have questions or concerns. We can help you. Get help as soon as you have questions. If you wait, it will be hard or impossible to catch up.

Before you email me to ask a question about the rules and procedures of this course, please read through this handout to see if the answer is written here. I tried hard to include in this document information that you are likely to be asking; please use it.