

**Math 1710.007 (Calculus I)
Spring 2012**

Lecture: MW 6-7:50 pm, PHYS 116

Instructor: Briana Foster-Greenwood

Office: GAB 407

Office Hours: MW 2-3:30 pm, T 3-4 pm, or by appointment

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Course Description: 4 hours. Limits and continuity, derivatives and integrals; differentiation and integration of polynomial, rational, trigonometric, and algebraic functions; applications, including slope, velocity, extrema, area, volume and work. Satisfies the Mathematics requirement of the University Core Curriculum.

Prerequisites: MATH 1650; or both MATH 1600 and MATH 1610. *A grade of C or better in the prerequisite course(s) is strongly recommended.*

Textbook: *Calculus*, 1st edition, by Briggs and Cochran

MyMathLab Web Access (REQUIRED): This course will incorporate the web-based platform MyMathLab (MML) for online homework (supplementing written homework). To get started, go to www.pearsonmylab.com and click "Student" under Register. Then enter our course ID listed below. After signing in or creating an account, you will need to pay for access. If you bought an Access Code (bundled with your textbook or as an access code kit sold individually), you will just enter your Access Code. Otherwise, you can pay directly online using a credit card or PayPal. If you are waiting on financial aid, there will be an option for a 17-day grace period, after which you must pay using one of the above methods in order to regain access.

Note: There is an interactive eBook version of the textbook available within MyMathLab. To view it, you need to download the *Mathematica CDF Player*.

MyMathLab Course ID: foster-greenwood91406

MyMathLab Registration Deadline: You must register in MML by our second class day. If you are waiting on financial aid, register in MML and choose the option for a 17-day grace period. Late work is not accepted in this course, and a zero will be assigned for missed assignments, even if the assignment is missed due to not having MML access.

Calculators: A graphing calculator is strongly recommended. Although calculators will generally NOT be permitted on exams/quizzes, a graphing calculator will be especially helpful for playing around with limits and different functions and confirming your pencil-and-paper work as you learn the material. Depending on the topic being covered, there may be a couple of occasions where calculators are allowed on a quiz.

Mathematica: The interactive eBook in MyMathLab requires *Mathematica* or *Mathematica CDF Player*. *Mathematica* is installed in the College of Arts and Sciences computer labs, and the *CDF Player* is available for free download at <http://www.wolfram.com/products/player/pearson.html>.

Learning Objectives: Develop a conceptual understanding of the ideas of limits, derivatives, and integrals and be able to recognize the types of problems these tools help solve. Learn the connection between derivatives (slope) and integrals (area). Learn to compute 1) limits of algebraic and trigonometric functions; 2) derivatives of most algebraic functions; and 3) certain integrals. Be able to apply differentiation to 1) rate of change problems; 2) graphing; and 3) optimization problems. Be able to use integration to compute 1) areas in the plane; 2) volumes; and 3) solutions to applied problems involving distance, mass, or work. Learn to use technology to make predictions, illustrate concepts, and develop intuition about different functions. Learn how to use “pencil-and-paper” methods to spot and analyze inaccuracies that crop up in solutions using technology. Learn a bit about the theory that backs the computations, and practice translating symbols and mathematical language into pictures and everyday language.

Grades: There will be four components to your grade, weighted as follows:

- 9% Homework (lowest 2 homework scores dropped)
- 9% Quizzes (lowest quiz score dropped)
- 57% Three Midterms (19% each, final exam may replace lowest midterm)
- 25% Final exam

Grades will be assigned according to the following intervals:

- A [90%, 100%]
- B [80%, 90%)
- C [70%, 80%)
- D [60%, 70%)
- F [0%, 60%)

At the end of the semester, you can access your course grade through the EIS system at my.unt.edu/grades.

Exams: There will be three midterms and a final exam. I expect to give the midterms in class on the following dates:

- Exam 1** **Wednesday, February 15**
- Exam 2** **Wednesday, March 14**
- Exam 3** **Wednesday, April 18**

The **comprehensive common final exam** will be **Monday, May 7, 6:00-8:00pm**. You must take the final exam at the time specified in the Schedule of Classes. You must take the final exam to pass the class.

There will be **no make-up exams**; instead, if your final exam score is higher than one of the midterm exam scores, then your **final exam score may replace your lowest midterm score**. This policy is designed to cover times when you are sick, have an emergency, etc. In the event of a schedule conflict, **you may schedule to take an exam early**. If you take an exam early, the problems may differ from the problems on the exam given in class. If you miss an exam, a zero will be recorded for that exam.

Written Homework: Written homework will be collected weekly. Have your homework **stapled** and ready to turn in at the beginning of class. When writing up your homework problems, include words or pictures to help explain what you are doing—your work should show all essential steps and be written so that another calculus student could follow your strategy for solving the problem. Correct solutions without supporting work generally earn no credit. If the grader is unable to read your work, you will receive no credit. **Written homework is due at the beginning of class**. There is **zero credit for late homework**.

Online Homework: MyMathLab homework will be assigned daily and due by the date/time posted in MML. The online problems will often be similar to your written homework, so you may want to work these first to check to see if you are on the right track. You may continue to improve your score on an MML assignment up until the day of the midterm covering that material (e.g. MML assignments over material for Exam 1 will remain available for score improvement up until the day of Exam 1). This rule applies only to MML assignments, NOT to written assignments!

At the end of the semester, I will gather your written and online homework grades all together and **drop the lowest two homework grades**. This policy is designed to cover times when you are sick, have an emergency, have transportation trouble, etc.

Quizzes: About once a week, there will be a short quiz. There are **no make-up quizzes**; instead, at the end of the semester, your **lowest quiz grade will be dropped**. This policy is designed to cover times when you are sick, have an emergency, have transportation trouble, etc. In the event of a schedule conflict, **you may schedule to take a quiz early**. If you take a quiz early, the problems may differ from the problems on the quiz given in class.

Attendance: Attendance for the full class period is expected and will be recorded. You should be prepared to ask questions, take notes, and look alive in class. It is your responsibility to obtain all assignments/handouts/announcements/info, even if you are absent. In class, you are expected to be respectful of the learning environment. This includes turning off all cell phones, MP3 players, laptops, etc., saving conversations for before or after class, being considerate when others are asking questions, and arriving to class on time. Should exceptional circumstances cause you to come in late, please be discreet—have your materials out before you enter the classroom, and take a seat near the door.

Recommended Keys to Success/Expectations: Success in math classes requires a great deal of time and honest effort outside of class along with punctual attendance. You are expected to come to each class on time and stay the entire class. You are responsible for everything that happens in class. You are expected to read ahead: get out a pencil and paper and try to work through the examples in the text. Make note of the steps that are confusing and come to each lecture prepared with questions about what you have read. Spend time after each lecture reviewing the lesson with a classmate and working on homework problems. Even just 15 minutes after each class helps enormously. Meet with a study group several times per week. Use the Math Lab. Work on the assignments consistently every day.

Math is not a spectator sport. You will not learn mathematics from watching the instructor or friends display ideas and solve problems. You must try problems, finish problems, ask questions, correct your mistakes, put concepts in your own words, and practice, practice, practice! The good news: an increase in effort usually results in an increase in success!

Resources: In addition to asking questions during class and office hours, here are some resources. Go ahead and use them right away! It is a lot easier to start out strong than to try to make up ground later in the semester.

Work Together: On homework assignments, you may find it helpful to study with other students—ask questions, share ideas and memory aids, discuss concepts, etc. Beware, though! You'll be on your own come test time, so be sure to go back and make sure you can do the problems on your own.

Math Lab: The UNT Math Lab www.math.unt.edu/mathlab is in GAB 440. You can work on your homework there and ask questions one-on-one. Hours: Mon-Thurs 7am-8pm, Fri 7am-4pm, Sat 12pm-5pm (closed Sundays and holidays).

UNT Learning Center: Offers tutoring and info about learning styles, study strategies, etc. Visit learningcenter.unt.edu for more information. Attend the workshops on learning styles and test-taking tips. These workshops (and others) are offered on a rotating schedule all throughout the semester.

Student Evaluation of Teaching Effectiveness: The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short online survey will be available at my.unt.edu towards the end of the semester and provides you a chance to comment on how this class is taught. Completion of the SETE is mandatory, as I need your perspective on what worked well and what can be improved for future courses.

University Deadlines: You are responsible for meeting all university deadlines such as registration, fee payment, drop deadlines, etc. Refer to the online Schedule of Classes and/or University Catalog for policies and dates.

Drop Policy: If a student is unable to complete this course, it is their responsibility to formally withdraw from the course. Withdrawal is done through the Registrar's Office after obtaining the necessary signatures. Consents for withdrawal and all necessary signatures may be obtained in the Math Department Office, GAB 435. The last day to drop a class with an automatic W is Friday, February 24. The last day to drop a class with W or WF is Tuesday, March 27.

Incompletes: Beginning Monday, April 9, a student that qualifies may request a grade of "I", incomplete. An "I" is a non-punitive grade given only if ALL three of the following criteria are satisfied. They are: (1) The student is passing the course; (2) The student has a justifiable (and verifiable) reason why the work cannot be completed as scheduled; and (3) The student arranges with the instructor to complete the work within one academic year.

Student Behavior: Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at <http://conduct.unt.edu>.

Academic Dishonesty: Cheating on exams/quizzes is a serious breach of academic standards and will be punished severely and generally result in a student failing the course. All work done on exams/quizzes must represent only the student's own work, unless otherwise stated in the directions. See <http://vpaa.unt.edu/academic-integrity.htm> for details on academic integrity at UNT. Refer to the university site <http://conduct.unt.edu> for the official policy with regards to academic dishonesty.

Disability Accommodations: It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office.

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(TENTATIVE) Lecture Schedule

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
1/16 MLK DAY University Closed	1/17 FIRST DAY OF CLASSES	1/18 Preview of Calculus 2.1 The Idea of Limits	1/19	1/20
1/23 2.2 Definitions of Limits 2.3 Techniques for Computing Limits MATH LAB OPENS for the semester	1/24	1/25 2.3 continued 2.4 Infinite Limits	1/26	1/27
1/30 2.5 Limits at Infinity <i>CENSUS DATE - Last day to drop course for refund; After this date instructor's written consent required</i>	1/31	2/1 2.6 Continuity 2.7 Precise Definitions of Limits	2/2	2/3
2/6 3.1 Introducing the Derivative 3.2 Rules of Differentiation	2/7	2/7 3.3 The Product and Quotient Rules 3.4 Derivatives of Trigonometric Functions	2/9	2/10
2/13 3.5 Derivatives as Rates of Change	2/14	2/15 Exam 1	2/16	2/17
2/20 3.6 The Chain Rule 3.7 Implicit Differentiation	2/21	2/22 3.8 Related Rates	2/23	2/24 <i>Last day to drop with an automatic "W"</i>
2/27 4.1 Maxima and Minima 4.2 What Derivatives Tell Us	2/28	2/29 4.2 continued 4.3 Graphing Functions	3/1	3/2
3/5 4.4 Optimization Problems	3/6	3/7 4.5 Linear Approximation and Differentials	3/8	3/9 MIDSEMESTER
3/12 4.6 Mean Value Theorem	3/13	3/14 Exam 2	3/15	3/16
3/19 SPRING BREAK University Closed	3/20 SPRING BREAK	3/21 SPRING BREAK	3/22 SPRING BREAK	3/23 SPRING BREAK

3/26 4.7 L'Hôpital's Rule 4.8 Antiderivatives	3/27 <i>Last day to drop a course with consent of instructor</i>	3/28 5.1 Approximating Area Under Curves	3/29	3/30
4/2 5.2 Definite Integrals 5.3 Fundamental Theorem of Calculus	4/3	4/4 5.4 Working with Integrals	4/5	4/6
4/9 5.5 Substitution Rule 6.1 Velocity and Net Change <i>Beginning this date a student who qualifies may request a grade of "I"</i>	4/10	4/11 6.2 Regions Between Curves	4/12	4/13
4/16 6.3 Volume by Slicing	4/17	4/18 Exam 3	4/19	4/20
4/23 6.4 Volume by Shells	4/24	4/25 6.5 Length of Curves	4/26	4/27
4/30 6.6 Physical Applications PRE-FINAL WEEK	5/1 PRE-FINAL WEEK	5/2 Review PRE-FINAL WEEK	5/3 PRE-FINAL WEEK	5/4 4:00 pm – MATH LAB CLOSSES for the semester PRE-FINAL WEEK
5/7 Final Exam, 6-8 pm FINALS WEEK	5/8 FINALS WEEK	5/9 FINALS WEEK	5/10 FINALS WEEK	5/11 FINALS WEEK TERM ENDS