

Mathematics 1710 Syllabus - Fall 2012

Course Description: This course is designed to give students a basic background in the topics of 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.

Learning Objectives: By the end of this course, you will be able to compute 1) limits of algebraic and trigonometric functions; 2) derivatives of most algebraic function; and 3) certain integrals. You will also be able to apply these computational skills to compute 1) tangent lines to curves; 2) areas in the plane; 3) volumes; and 4) solutions to applied problems. In addition to computational skills, you will also gain an understanding of the theoretical aspects of limits, derivatives and integrals including the ability to 1) prove limits using only the definition; 2) derive the standard rules for differentiation; and 3) prove the fundamental theorem of calculus.

Prerequisite: Math 1650 or equivalent

Book: Calculus by Briggs and Cochran

Professor: Neal Brand

Contact Information: Email: neal@unt.edu Phone: 940-565-4138

Office: GAB 417B

M 3:30-4:20, T 11:00-11:50, W 11:00-11:50 Th 8:30-9:50, F 8:30-9:50

Please use these hours to ask questions of your instructor. At other times, your instructor will most likely be busy with other responsibilities, so do not just drop in at other times. If you need to see your instructor at another time, make an appointment in advance.

Grading and Course Requirements: Grades are based on three regular exams, homework, a project, and a final. The homework is worth a total of 100 points. You will receive more than 20 homework assignments, each worth 5 points, but only the best 20 assignments count. A project is extended homework that requires much more effort and time than regular homework assignments. The project is worth 100 points. Each regular exam is worth 100 points and the final exam is worth 200 points. This gives you a total of 700 possible points. To earn an A it is sufficient to make a total of 630 points, 560 for a B, 490 for a C, and 420 for a D. In order to make a passing grade in this class, there are two other requirements. First, you must pass the derivative exam by scoring at least 9 out of 10 on the exam. After a few weeks, you will be given the derivative exam once a week until you pass or the semester ends, whichever comes first. Second, you must complete the on-line course evaluation as described below.

Course Evaluation: The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. You are required to go to this web site and complete an evaluation of the course sometime during the open period. The evaluation could take you 10 minutes or less if you just answer the multiple choice questions. If you wish to make specific comments about the course, the instructor or anything else related to this class, you will have the opportunity to type in comments. Although your instructor will receive a list of who completed the evaluation forms, he will not receive any other information about the evaluations until after the grades are turned in. Your instructor will receive no information that would link you to your specific answers or comments. The mathematics department and I take your course evaluation input very seriously.

Exams: The regular exams will be given in class on October 2, October 25 and November 28. The final exam is scheduled for December 12 (Wednesday) at 8:00 in the classroom. The exam dates are subject to change, but the final exam date is very unlikely to change.

Homework: Homework will be assigned from the book and some handouts. The assignments will be posted on the web. You are expected to turn in neatly written homework that shows all essential work. If the grader has trouble reading the homework, then the homework will be returned with a zero. Please see the web site [homeworkexp.html](http://www.math.unt.edu/~brand/class/1710/2012Fall/Brand's%201710%20-%20Fall%202012.htm) for clarification on what is expected from the grader.

Web Page: From the UNT home page follow through the links through the College of Arts and Sciences, the Mathematics Department and Neal Brand's home page to find the Math 1710 home page. You will find homework assignments, and other information concerning this class at that site. The URL is <http://www.math.unt.edu/~brand/class/1710/2012Fall/Brand's%201710%20-%20Fall%202012.htm>.

Attendance: It is important that you come to class in order to master the material. Consequently, you are required to attend all classes. If you have three or fewer unexcused absences, there will be no grade penalty other than the natural consequences of not participating in class. For each unexcused absence after the third, your semester grade will be lowered by one letter grade. An absence will be excused if you have a legitimate reason for missing class. Your illness, a death in the family, and a religious holiday are examples of legitimate excuses, while the alarm not going off is not. If you are absent and you think that your absence should be excused, please let me know as soon as possible. In addition to the attendance requirements of this class, the TAMS program also requires you to attend every class. If you are absent for any reason, you are required to file an absence report with Dr. Allen of the TAMS Academic Office.

Extra Credit: Do not expect to be able to do extra credit work to help your grade either before or after the final exam. There will be no extra credit for this course other than perhaps an extra problem on an exam. Please do not ask for extra credit work to help your grade. Your best strategy to help your grade is to do the required work at the time it is assigned.

Cell Phones and Other Electronic Devices: Please turn off all electronic devices during the class. The only exceptions are medical devices, calculators, and flat computers that are used for note taking. **Use of a cell phone for talking or for texting is not appropriate.**

Disabilities: It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office. Their phone number is 940-565-4323.

Cheating: No cheating will be tolerated. Cheating includes receiving help from anyone or anything that is not specifically allowed on an exam, final, or project. For example, calculators are not allowed on exams and using one would constitute cheating. On the other hand, you are encouraged to work together on the regular homework assignments as long as everyone participates and no one just copies the answers. On the project, you are not to get help from any outside source except the instructor. You will find more details regarding what is allowed on the project when it is assigned. **Anyone caught cheating will receive an F for the course.** Furthermore, a letter will be sent to the TAMS dean. I expect no cheating in this class. (See the UNT website on academic dishonesty: <http://www.vpaa.unt.edu/academic-integrity.htm>.)

Last Comment: Anything on this syllabus is subject to change at the discretion of the instructor.

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Math 2100

Fall 2012

[Syllbus](#)

Schedule

- **August 29**
Begin Unit 1: Functions
[Definition of a Function](#)
- **September 5**
Counting Functions
- **September 10**
[Exploration: Complex Roots and the Quadratic Function](#)
- **September 12**
[Lab: Qualitative Graphing Part 1](#)
[Lab: Qualitative Graphing Part 2](#)
- **September 17**
Finish Qualitative Graphing
Discuss shape of sine and cosine graphs
Start Conic Sections
[Complex Root homework Due](#)
[Analytic Definitions of Conic Sections](#)
[Parabola Graphing](#)
[Ellipse and Hyperbola Graphing](#)
[Unit Homework 1](#) Due September 24
- **September 19**
Continue Conic Sections
[Exploration: Conic Sections](#)
Look for how conic sections are used and be prepared to share what you have learned next time
- **September 24**
Complete Conic Sections
Turn in [Unit Homework 1](#)
- **September 26**
[Lab: Spring Mass Motion](#)
Turn in Conic Section Homework
- **October 1**
Exam 1
- **October 3**
[Sequences](#)
- **October 8**
[Difference Column Exploration](#)
- **October 10**
Function patterns

Verifying Function Patterns

Plain Graph Paper

Log Graph Paper

Unit 1 Assignment 2 Due October 26

- **October 15**
Exploration: [Function Patterns Application](#)
- **October 17**
Begin Unit 2: Modeling
[Terminal Velocity Lab](#) – Read the lab handout before class and bring a digital camera to class. Instead of going to our classroom, to go the 4th floor of GAB and we will meet just outside the math office.
- **October 22**
Exploration: [Thunderstorm Data Regression](#)
[Midterm Project](#)
- **October 24**
Exploration: Residual Plots
Homework: [Stabilizing wood](#)
- **October 26**
Finding the Inverse of Matrix Using an Augmented Matrix
Exploration: Using Matrices to Model Equations
[Unit 1 Assignment 2](#) Due today
- **October 31**
Review for Exam 2
Exploration: Using Matrices to Model Equations
[Stabilizing wood due today](#)
- **November 5**
Exam 2
- **April 2**
[Modeling using piecewise defined functions \(Roller Coaster\)](#)
- **November 7**
Begin Unit 3: Overlooked Topics
Parametric equations and vectors
[Exploration: Extra Parameter Problems](#)
- **November 12**
More parametric equations and vectors
[Exploration: Extra Parameter Problems](#)
[Major Homework Assignment 3](#)
- **November 14**
Finish parametric equations and vectors
[Vector force table lab](#)
- **November 19**
[Polar coordinates](#)
- **November 21**
Midterm Project Due
Major homework Assignment 3 Due

- **November 26**
Review for Exam 3
- **November 28**
Exam 3
- **December 3**
Tiger Weeds Golf Shot
- **December 5**
[Review](#)
- **December 10**
Final Exam (10:30 for section 001 and 1:30 for section 002)

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