Mathematics 112 Fall, 2014

Textbook: Stewart, Single Variable Calculus: Early Transcendentals, 7th edition

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Office Hours: Mondays, Wednesdays 3 – 5 pm, Fridays 3 – 4* pm and by appointments

Content: Mathematics 112 is the second semester of calculus and is designed specifically for students who have completed a semester of college calculus (Math 111, Math110B, or AP Calculus). Course content includes methods of integration, improper integrals, polar coordinates, sequences and infinite series, power series, and introduction to differential equations. Specific topics by class day are attached.

Goals: At the completion of the class, students should have (1) a basic understanding of derivative, of antiderivative, and of limit; (2) a basic understanding of power series and be able to determine the domain of appropriate power series. Students should also be able to (1) use the rules of differentiation as they apply to algebraic and transcendental functions; (2) evaluate a variety of limits; (3) sketch graphs of transcendental functions by building on concepts from Calculus I; (4) demonstrate appropriately the methods of integration (substitution, integration by parts, trigonometric substitution, partial fractions) and use these methods with typical indefinite, definite, and improper integrals; (5) graph and find area using simple polar coordinate expressions; (6) determine convergence of appropriate infinite series by giving logical arguments; (7) derive a power series expression for certain transcendental expressions using a geometric series or Taylor's Theorem; (8) solve simple first-order differential equations.

Attendance: You are expected to attend all classes and are responsible for all material covered in class as well as any changes made in the schedule regarding quizzes and tests. Furthermore you are expected to have done the reading before each class. Outlines posted on Blackboard will announce the topics for each lecture.

Class attendance and consistent preparation for class will determine the success or failure the student realizes in this course.

Homework: Homework will be assigned almost every day of class. These exercises will not be collected but are for the benefit of the students. Students may ask questions about the homework, and quizzes based on the homework will be given. The instructor may ask to see a student's homework.

It is important for the success of the student that homework be completed as soon after covering the material as possible. Use good style on your homework.

In general you need to spend at least 6-8 good hours per week on study not counting the time spent reviewing for quizzes and tests.

Quizzes: About 9 quizzes will be given in class. They will be announced and based on homework. The best 8 quiz scores will count towards the grades.

Gateway Test: In order to pass Math 112/112Z, the student must pass a Gateway exam. This exam is made up of eight problems as follows: two limits to evaluate (including using L'Hospital's Rule), two differentiation problems (any transcendental function may be included), and four integration problems (using any of the techniques such as u-substitution, trigonometric substitution, integration by parts, and

* except when there is a meeting

partial fractions). To pass this test, a student must work at least six problems correctly. Points will be earned as follows:

all eight problems correct	50 points
seven problems correct	40 points
six problems correct	30 points

Major Tests: Three tests at 100 points each and a final test at 150 points will be given. All of the tests will be comprehensive.

Each student is expected to take tests at the scheduled times. Any conflicts or problems will be handled on an individual basis. If the excuse is considered legitimate by your instructor, arrangements will be made to take a test **prior to** the testing time. Emergencies will be handled on an individual basis. **No make-up test will be given after the scheduled test time.**

Documented special accommodations for test taking must be cleared several days prior to the test date so that appropriate arrangements can be made.

Calculators: Calculators will **not** be allowed on any work handed in for grades.

Grading: The final course grade will be determined as follows:

Tests (3 @ 100 points & 1 @ 150 points)	450 points
Gateway Test	50 points
Quizzes (8 @ 25 points)	200 points
TOTAL	700 points

In general, letter grades will be determined as follows:

A: 91% and above; B: 81 – 90%; C: 71 – 80 %; D: 61 - 70%; F: less than 59%

Grades of A-, B+, B-, C+, C-, D+ may be assigned for percentages near the above cut-offs.

Blackboard Website: There is a course website on the Blackboard: http://classes.emory.edu Outlines for each lecture (including homework assignment and extra handouts) will be posted. Announcements, scheduled SI sessions, questions related to problems, and other information can be posted at any time. The student is responsible for checking the site every day and obtaining homework assignment, extra handouts and other related information.

Supplemental Instruction, Tutoring and Study Groups: The SI leaders will be announced. They schedule study sessions to review calculus concepts, to help students discover how best to study calculus. Check the Blackboard for announcements.

Contact Mr. Paul Oser, Director of the Mathematics Center for tutoring hours, most likely M-TH, 3-6 pm.

Study groups, organized by students are highly recommended.

Written Style: Thoughts in mathematics are expressed in sentences, such as "1 + 1 = 2". There is a subject "1 + 1", a verb "=", and a predicate "2". The student should strive to be neat and to use mathematical symbols appropriately. Your work must be orderly and legible.

THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT IN THIS COURSE. BY YOUR SIGNATURE ON SUCH WORK YOU PLEDGE THAT WORK WAS DONE IN ACCORDANCE WITH THE RULES STIPULATED ON THE WORK OR IN THIS SYLLABUS.

Schedule of Topics (subject to adjustments)

27-Aug	Wednesday	Review Functions, Limits
29-Aug	Friday	Review Functions, Limits, Differentiation
3-Sep	Wednesday	L'Hopital's Rule
5-Sep	Friday	L'Hopital's Rule
8-Sep	Monday	L'Hopital's Rule
10-Sep	Wednesday	Graphing logarithmic and exponential functions
12-Sep	Friday	Review Integration
15-Sep	Monday	Review for Test 1
16-Sep	**Tuesday**	**Test 1, 7:45 AM – 9:30 AM**
17-Sep	Wednesday	Integration by Parts
19-Sep	Friday	Integrals with Trig Functions
22-Sep	Monday	Trigonometric Substitution
24-Sep	Wednesday	Partial Fractions
26-Sep	Friday	Partial Fractions
29-Sep	Monday	Improper Integrals
1-Oct	Wednesday	Improper Integrals
2-Oct	**Thursday**	**Gateway Test 1, 8:30 AM – 9:30 AM**
3-Oct	Friday	Review for Test 2
6-Oct	Monday	Infinite Sequences
7-Oct	**Tuesday**	**Test 2, 7:45 AM – 9:30 AM**
8-Oct	Wednesday	Infinite Series
10-Oct	Friday	Infinite Series
15-Oct	Wednesday	n-th Term Test and Integral test
17-Oct	Friday	Integral test and p-series
20-Oct	Monday	Integral test and p-series
22-Oct	Wednesday	Comparisons of Series
24-Oct	Friday	Alternating Series
27-Oct	Monday	Ratio and Root Test
29-Oct	Wednesday	Review Infinite Series
30-Oct	**Thursday**	**Gateway Test 2, 8:30 AM – 9:30 AM**
31-Oct	Friday	Polar Coordinates
3-Nov	Monday	Polar Coordinates
5-Nov	Wednesday	Polar Coordinates
7-Nov	Friday	Review graphing and area in polar coordinates
10-Nov	Monday	Review for Test 3
11-Nov	**Tuesday**	**Test 3, 7:45 AM – 9:30 AM**
12-Nov	Wednesday	Power Series
14-Nov	Friday	Power Series
17-Nov	Monday	Power Series
19-Nov	Wednesday	Power Series
21-Nov	Friday	Taylor and Maclaurin Series
24-Nov	Monday	Taylor and Maclaurin Series
1-Dec	Monday	Review Power Series
3-Dec	Wednesday	Review for Final Test
5-Dec	**Friday**	**Gateway Test 3, in class – Last Chance!**
8-Dec	Monday	Last Day, Evaluations, Discuss Final Test
9-Dec	**Tuesday**	**Final Test, 7:45 AM – 9:30 AM**