

Mathematics 111T  
Fall, 1998

**Textbook:** Larson, Hostetler, Edwards, *Calculus of a Single Variable - Early Transcendental Functions*.

**Instructor:** Dr. Karen Rogers.

**Office:** 104 Few Hall. Phone: x4-8472.

**Office Hours:** Mon 2-3, Wed 2-3, Tues 1-2, Fri 9-10. Also by appointment.

**Course Content:** Mathematics 111T is the first semester of first-year calculus. The main topics are limits, the differentiation of functions and its applications, and the integration of functions and its applications. This course will tend to limit itself to the analysis of algebraic and transcendental functions. Specific topics are outlined in a later section of this course guide.

**Evaluation:** Evaluation will be based on the following written work:

Tests (4 @ 100 pts)	400 points
Lab Reports	200 points
Quizzes	200 points
Computer Project	100 points
Final	200 points
<hr/>	
Total	1100 points

A rough guide to letter grades:

A	990 points and up
B	880-989 points
C	770-879 points
D	660-769 points
F	below 660

Plus "+" and minus "-" may be applied to letter grades ( $A^-$ ,  $B^+$ , etc.) for point totals near the cutoffs.

**Tests:** The four tests will be given on the following days:

Thursday, September 17 at 7:45 a.m.

Thursday, October 15 at 7:45 a.m.

Thursday, November 5 at 7:45 a.m.

Thursday, December 3 7:45 a.m.

Note that the tests are given outside of class. In general, calculators will not be allowed on tests (nor will they be very useful).

You are expected to take tests at the scheduled times. Any conflicts or problems will be handled on an individual basis. If you have an excuse deemed legitimate by your instructor, arrangements will be made for you to take a test prior to the testing time.



**Labs & Lab Reports:** You will need a calculator for some of the labs. Neither a graphing nor a symbolic calculator will be necessary, but they may prove useful. A written lab report will be assigned at the end of each lab class, due the following Monday. Collaboration during lab class is permitted and in fact required. However once the lab class has ended, you must finish the work and write the lab report alone. There will be 8 lab reports worth 25 points each.

**Quizzes:** All quizzes are announced and “take-home.” You must be present in class to receive your quiz unless prior arrangement has been made with the professor. You must work each quiz at *one sitting* and use only *authorized materials*. Do not look at the contents of the quiz until you are ready to start. You must work alone. Quizzes are due in class on the class day following your receipt of them. Each quiz is worth 25 points. Each of the four segments of the course will have 3 quizzes of which the best 2 will be used in determining your grade.

**Computer Project:** You are to prepare a portfolio of computer print-outs showing 10 different non-piecewise defined functions that have distinctly different shapes. Specific instructions will be given out at the beginning of October. You may get help from the computer aides on the use of the computer, but *you* must create your own functions and you must not share functions. Due on **Wednesday, November 18.**

**Homework:** Assignments from your text will be given at the beginning of each testing period. These assignments will not be collected but are for your benefit. It is essential that you complete assignments as they are assigned and that you come to class prepared. Collaboration is encouraged as discussion of the concepts often leads to their clarification. However be sure that you can solve problems unaided. In general you need to spend at least six good hours per week on study not counting the time spent taking quizzes and reviewing for tests.

**Written Work:** Thoughts are expressed by sentences: just so in mathematics. Pay attention to your textbook: it is written in sentences. **Your written work must be in complete sentences.** Note “ $1 + 1 = 2$ ” is a complete sentence (it has a subject “ $1 + 1$ ”, verb “ $=$ ” and predicate “2”). Use mathematical symbols wherever appropriate; do not use a lot of words. Your work needs to be neat and orderly to be intelligible. It is common practice to rewrite solutions once they are found.

**Supplemental Instruction/Tutoring/Help Sessions:** We have a supplemental instructor who will conduct weekly help sessions and review sessions. Attendance is optional. Student tutors will be available. A schedule will be announced later.

Additional help sessions led by Dr. Rogers will be scheduled at appropriate times during the semester. Attendance is optional.

**Class Attendance:** You are expected to attend all classes since you are responsible for work covered in class. Furthermore you are expected to have done the reading for each class. Your ability to get the most out of your professor and each class is greatly diminished by a failure to be prepared.

Honor Code: The Honor Code of Oxford College applies to all work submitted for credit in this course. Except as noted above about the lab reports, all such work will be pledged to be yours and yours alone. This is the case when you place your name on work submitted. The Honor Code applies to all tests, lab reports, quizzes, the computer project and any other work you may submit.

Proposed Topics by Date:

Date	Topic	Section
Wednesday, 26 August	Limits	(1.2,1.3,1.4)
Friday, 28 August	Functions and Limits	(0.4,1.5)
Monday, 31 August	Continuity	(1.5,1.6)
Tuesday, 1 September	Lab 1: Approximating Functions	
Wednesday, 2 September	Intermediate Value Theorem, Limits at Infinity	(1.5,3.5)
Friday, 4 September	Basic Trigonometric Functions/Identities	(0.5,NTF A,B)
Tuesday, 8 September	Lab 2: Basic Trigonometric Functions and Limits	
Wednesday, 9 September	Introduction to the Derivative	(2.1)
Friday, 11 September	Derivative of Sine and Cosine	(2.2)
Monday, 14 September	Special Limits	
Tuesday, 15 September	Lab 3: Review	
Wednesday, 16 September	Review	
Thursday, 17 September Test 1 at 7:45 a.m.		
Friday, 18 September	Rules of Differentiation	(2.2,2.3)
Monday, 21 September	Chain Rule	(2.4)
Tuesday, 22 September	Lab 4: Graphing Trigonometric Functions	(NTF C)
Wednesday, 23 September	Graphing Sine and Cosine	(0.5,NTF C)
Friday, 25 September	Implicit Differentiation	(2.5)
Monday, 28 September	Impl. Diff.; Higher Order Derivatives	(2.3,2.5)
Tuesday, 29 September	Lab 5: Related Rates	(2.6)
Wednesday, 30 September	Solving Trigonometric Equations	(NTF D)
Friday, 2 October	Inverse Trigonometric Functions	(NTF E)
Monday, 5 October	Exponential and Logarithmic Functions	(0.6,0.7,NTF F,G)
Tuesday, 6 October	Lab 6: Derivatives of Transcendental Functions	(4.7,5.5)
Wednesday, 7 October	Linear Approximations	(3.9)
Friday, 9 October	Review	
Wednesday, 14 October	Review	
Thursday, 15 October	Test 2 at 7:45 a.m.	

Friday, 16 October	Graphing Functions	(3.1,3.3,3.4)
Monday, 19 October	Graphing Functions	(3.5,3.6)
Tuesday, 20 October	Lab 7: Graphing	
Wednesday, 21 October	Mean Value Theorem	(3.2)
Friday, 23 October	Graphing Review	
Monday, 26 October	Optimization Problems	(3.7)
Tuesday, 27 October	Lab 8: Graphs of Derivatives	
Wednesday, 28 October	Antiderivatives	(4.1,4.5)
Friday, 30 October	Antiderivatives and Differential Equations	(5.1,5.4)
Monday, 2 November	Differential Equations	(5.2,5.3)
Tuesday, 3 November	Lab 9: Review	
Wednesday, 4 November	Review	
Thursday, 5 November	Test 3 at 7:45 a.m.	
<hr/>		
Friday, 6 November	Sigma Notation	(4.2)
Monday, 9 November	The Definite Integral	(4.3)
Tuesday, 10 November	Lab 10: Integration Concepts	
Wednesday, 11 November	The Definite Integral	(4.3)
Friday, 13 November	Fundamental Theorem of Calculus	(4.4)
Monday, 16 November	Substitution	(4.5)
Tuesday, 17 November	Lab 11: Properties of the Definite Integral	
Wednesday, 18 November	Area Between Curves	(6.1)
Wednesday, 18 November	Computer Project Due	
Friday, 20 November	Volumes of Revolution	(6.2)
Monday, 23 November	Volumes of Revolution	(6.3)
Tuesday, 24 November	Lab 12: Applications of the Integral	
Monday, 30 November	Estimating Integrals	(4.6)
Tuesday, 1 December	Lab 13: Review	
Wednesday, 2 December	Review	
Thursday, 3 December	Test 4 at 7:45 a.m.	
<hr/>		
Friday, 4 December	Review for Final	
Monday, 7 December	Review for Final	
Tuesday, 8 December	Lab 14: Review for Final	