Math 119: Calculus with Business Applications.
Tuesday & Thursday: 8:30 - 9:45 am
Fall 2003

Basic Course Information
This Calculus course is primarily offered for students who plan to enter the School of Business. It is a mathematics course by design, but there are more business-related examples than in a traditional Calculus course. The minimum prerequisite is a working knowledge of Algebra II.

Required Materials
Textbook: Applied Calculus by Hughes-Hallett et al. 2nd Edition
Technology: A graphing calculator. The TI-83 is recommended and is the type of calculator to be used by the instructor.

Instructor Contact Information
Instructor: Katrina Palmer (Trina)
Office location: MSC room N406
Email: kpalmer@learnlink.emory.edu (best way to contact)
Office phone: (404) 727-7581 (don't count on messages)
Webpage: www.mathcs.emory.edu/~kpalmer
Office Hours: t.b.a

Grading
Grades will be determined according to the following breakdown.

Nightly Homework & Class Participation: 5%
Big Homework (total of 2): 10%
Mini-test on Chapter 1: 10%
Midterm Exams 1 and 2: 25% each
Final Exam (**DEC 12th 12:30-3PM**): 25%

Big homeworks will be passed out one week before each due date (indicated on the Course Schedule) and are due when class begins. If this homework is one day late, the grade will drop by 10%. Big homeworks will not be accepted more than one day late, and daily homework will not be accepted late at all. All exam dates are indicated on the Course Schedule. Make-up mid-term exams will not be given. There will be no early final exams.

Daily Homework
Daily homework should be turned in on an index card. The assignment is this: explain in detail one question you have from the reading for that day. "In detail" means you should explain what you do understand about the topic, then describe what the book says that doesn't make sense to you. Examples of good and bad questions appear below. If you don't have any questions from the reading for that day, turn in your solution to specified

even-numbered problem(s). Note that this latter option means you have a full understanding of everything covered in the reading for that day.
Examples of **good** questions:

+ In section 1.1 Example 1 on p. 3
  The function is $V = f(a) = 13.25 - 0.9a$, where V is the value of the care and a is the age. In part a, I understand that 9 is a V value when a is 5, but in the interpretation, why is it \$9000 and not \$9? Likewise in part b, I agree that the vertical intercept of f is 13.25, but why is the value of the care \$13,250 and not \$13.25? Do I just assume it's in thousands because that's what makes sense for the value of a car?

+ Section 1.2, p. 7, middle of the page
  They give function values for y and t in a table, and they're computing the slope. I know that slope is rise over run, or $\frac{\Delta y}{\Delta x}$, and so "slope=$\frac{146-138}{8-4} = 2$" is right. But where did "inches/year" come from?

Examples of **bad** questions:

- What's a domain?

- I don't understand functions.

- Do crickets really chirp at a rate proportional to temperature?

- What's a zero?

- What is Δx called "run?"

- What's a difference quotient?

Things You Should Know

- This course is different from the traditional lecture-based mathematics class. It is taught in Reform-style, which means the student is responsible for studying and working problems on each day's material before class time. The readings and problems for each day are assigned at the end of the previous class and are listed under Nightly Homework Assignments on the class webpage. Note: the daily homework (index card) should be done AFTER the reading and problems have been completed and/or attempted.

- Students will work in groups in order to get to know each other and to learn from each other. This applies to classroom problem-solving time and is optional for all homework assignments. However, note that all exams will be given individually with no assistance from books, notes, or classmates.

- Though calculator instruction is not a formal part of this course, instruction is available for the TI-83 during office hours. If you're new to your graphing calculator, it's a good idea to keep the Manual close at hand.

- The Honor Code is in full effect in this class. If you are not familiar with the Honor Code, I encourage you to read up on it.

Extra Help Options

- Math Help Sessions: Monday through Thursday from 5:30-7:30 in our classroom (MSC W302)

- Tutor: www.emory.edu/COLLEGE/academicsupport/wanttutor.html

What a typical day will be like

Just after you walk through the door, you'll turn in an index card with your daily homework on it. At the beginning of class time, we'll briefly discuss any remaining questions from the previous class' material. Next, we'll have a discussion and go over a few assigned problems on the new material. Then you'll get into pairs/groups/etc. and work on the classwork for the day. The last 20 minutes or so we will go over the classwork (you will be putting problems on the board and explaining them) and summarize the section(s).

General Class Etiquette

Please turn off all cell phones and pagers before class begins.

When you come to class, plan to arrive on time and remain throughout the entire period. If you must leave early, please inform your instructor before class begins.

Course Schedule*

week of	Tues	Thurs
Aug 26		Section 1.1 What is a function?
Sept 2	Sections 1.2 - 1.3 Linear Functions Rates of Change	Section 1.4 Applications of functions to Econ
Sept 9	Sections 1.5 - 1.7 Exponential/Logarithm functions Exponential growth and decay	Focus on Modeling Fitting formulas to Data p. 75
Sept 16	**Mini-Test** Chapter 1 10% of grade	Section 2.1 - 2.2 Instantaneous rate of change The Derivative function
Sept 23	Section 2.3 - 2.4 Interpretations of Derivative The Second Derivative	Section 2.5 Marginal Cost and Revenue
Sept 30	Section 3.1 - 3.2 Derivative of Powers, Polynomials Exponential and Log Functions	Section 3.3 - 3.4 Chain Rule, Product Rule Quotient Rule
Oct 7	Section 4.1 - 4.3 Max, Min, Inflection Points	Section 4.4 Profit, Cost, and Revenue
Oct 14	Fall Break No Class	Section 4.5 - 4.6 Average Cost, Elasticity
Oct 21	Section 4.7 Logistic Growth **Homework 1 Due**	*overflow*
Oct 28	**EXAM** Chapters 2-4	Focus on Modeling (p.82) & Section 11.1 Compound Interest and the number e Geometric Series
Nov 4	Section 11.2 Application of Geometric Series	Section 5.1 - 5.2 Accumulated Change The Definite Integral
Nov 11	Section 5.3 The Definite Integral as Area	Section 5.4 Interpretations of the Definite Integral
Nov 18	Section 5.5 Fundamental Thm of Calculus	Section 5.5 More with FTC
Nov 25	Sections 6.1 - 6.2 Average Value Consumer, Producer Surplus **Homework 2 Due**	Thanksgiving No Class
Dec 2	*overflow*	**EXAM** Chapters 11, 5, 6
Dec 9	*overflow*	**Final Exam: Dec. 12th 12:30 - 3:00pm**

* Note: Text coverage of indicated sections may shift around if the need arises, but exam dates will not change.