Math 245– Applied Calculus, Spring 2009

Instructor: Dr. Karrolyne Fogel
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Office Hours: **M** 1:30-2:30, **T** 3:00-4:00, **W**: 12:30-1:15, **Th** 1-2, **F** 12:30-1:15 and by appt.

Class Hours: MWF 1:30-2:25, in Hum 111.
Required Supplies:

- The text: Tan, Applied Mathematics, 4th edition,
- A basic scientific calculator. Several varieties are available for around $10. You will want one that does logarithms and exponents
- A stapler for stapling together the pages of your Problem Sets

Course web site: Some course material will be posted on the Internet through CLUnet's ERes. Go to http://public.clunet.edu/eres and find the appropriate Math 245.

Course Description: This course will examine methods of mathematics used in business and economics, with a focus on problem solving and applications. We will begin with an introduction to the ideas of differential calculus, including applications to marginal analysis (cost, revenue, profit), the elasticity of demand, and optimization. We will then briefly investigate integral calculus, with applications including the future value of a continuous income stream and consumers' and producers' surplus.

Course Objectives.
Students successfully completing this course will be able to

1. Model and solve real-world problems.
2. Apply the concepts of differentiation and integration to solve problems arising from applications in business and economics.
3. Graph and differentiate quadratic, exponential and logarithmic functions, and use these functions appropriately in applications.
4. Analyze functions graphically, numerically, and algebraically.
5. Differentiate functions using the power rule, product rule, quotient rule, and chain rule.
6. Apply the first and second derivative tests to solve optimization problems.
7. Evaluate definite integrals using the Fundamental Theorem of Calculus.

Prerequisites: Math 151, Math 115 and/or better than 600 on the Math SAT.
Course Components:
Reading the text:

I expect you to read the appropriate sections **before** they are discussed in class. Doing so will help the class make more sense and enable you to get more out of the discussion. Reading math is not like reading a novel: actively think about each question. Keep a pencil in hand to make notes about why a step was done, or about the definition of a term.

Class attendance and participation:

Make a habit of attending class every day. Read the textbook sections before the day they are listed on the syllabus, and come prepared to discuss the material and ask questions. During each class we will have worksheets or other learning activities. There is no provision for making up missed class activities.

Class Atmosphere

It is important that we create a class atmosphere that is conducive for learning. For me that means that there are no stupid questions. Math is supposed to "make sense" and if you have a question, your neighbor probably has the same question. It is important that you ask your questions right away: If you do not understand why we do something at the beginning of the problem, do not wait until the end to ask—you won't have understood what happened in the middle. Clear up any misunderstandings right away. That said, math is also difficult for many people, and it takes concentration to follow and process how or why it makes sense. Please keep unrelated distractions to a minimum: keep your cell phones silent, save questions about the logistics of the class for the beginning or the end of class, and hold conversations about other classes and interests at times other than math class.

Getting Help

Reading the text, coming to class, and asking questions in class are the most important steps in getting help to understand the material. Quality Study Groups can also make an enormous difference in how well you understand the material. The next is to **come see me in office hours** or before or after class. Starting on the second Sunday of the semester, the Math Lab is also open for drop-in tutoring. The Math Lab is open 7pm-10pm Sunday through Thursday and is located in F-10 (just up the hall from my office).

Problem Sets (Math is NOT a spectator sport: you must do math to learn math)

Problems will be assigned for each section. Some of the problem sets will involve using the computer (e.g. some will require the use of Excel, others may require you to answer problems online). The problems are important for understanding the material as well. Just as one must practice a sport in order to play it well, one must practice math in order to do well at it. Late assignments lose 2pts a class period (1pt a day) and will not be accepted after the assignment is graded. The problem sets are due at my office (F-9) by **3pm** on the day they are due. There will be approximately 32 assignments, and I will drop your lowest score. Your problem sets should be neat, **legible**, and written in complete sentences. They should also be stapled. Unreadable assignments will be returned ungraded. Some Excel spreadsheets may need to be emailed to kfogel@clunet.edu as part of the problem set. Make sure the work in these files are clearly labeled as well.

Quizzes

There will be quizzes throughout the semester, most likely 5-6 of them. In-class quizzes will occur at the beginning of class. Late arrivals will not be given extra time. No make-up quizzes will be given. To compensate for unavoidable emergencies, I will drop your lowest quiz score.

Exams

There will be three in-class exams on **Wed Feb 11, Wed Mar 25, and Wed Apr 29**. Check your schedule for possible conflicts and bring them to my attention **now**. There will be no make-up exams except under extremely unusual and well-documented circumstances.

Final Exam

The COMPREHENSIVE Final Exam will be held on **Mon**_____ from

_____ as scheduled by the registrar.

Points available

Problem sets (12 at 8 pts each)	23%	160
Exams (3 at 100 pts each)	43% (14.2% each)	300
Quizzes (x at 100/x pts each)	14%	100
Final Exam	20%	140
TOTAL	100%	700

Grading

The final grade will be determined based on the total points earned.

A	A-	B+	B	B-	C+	C	C-	D	F
93-100%	90-92%	87-89%	83-86%	80-82%	77-79%	73-76%	70-72%	60-69%	0-59%

Course Policies:

Cheating will not be tolerated and will result in a minimum of an F on the assignment. A report of Academic Dishonesty will be filed. Credit should be given to the source of non-routine ideas. This may include the textbook, other math books, web sites, tutors, and other members of the class. While the work on the exams must be your own, I do encourage collaboration on problem sets. Giving a hint or using another student's idea is perfectly acceptable **PROVIDED** you give her or him the credit and write your own explanation. Any submission should reflect your understanding and not someone else's.

Accommodations:
California Lutheran University is committed to providing reasonable accommodations to students with various documented disabilities including, but not limited to, physical, learning , visual, hearing, or psychological. If you are a student requesting accommodations for this course, please contact your professor at the beginning of the semester and register with the Coordinator for Students with Disabilities (Pearson Library, Center for Academic and Accessibility Resources, Ext. 3260) for the facilitation and verification of need. Faculty will work closely together with you and your coordinator to provide necessary accommodations.

Tentative Schedule:
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Exam dates are fixed and will not change (except for the rare community emergency).
Schedule plane flights, etc to accommodate the exams.

(Modeling) Monday	**Wednesday**	**Friday**
	1/21 Intro; review of functions (domain, range, quadratic functions)	1/23 Quadratic Functions (Optimization)
1/26	1/28 Quiz 1	1/30 9.1 Introduction to Limits
2/2	2/4	2/6
2/9	2/11 **Exam 1**	2/13
Presidents' Day (no class)	2/18	2/20
2/23	2/25	2/27
3/2	'3/4	3/6 Quiz
3/16	3/18	3/20
3/23	3/25 **Exam 2**	3/27
3/30	4/1	4/3
4/6	4/8	4/10 Good Friday (no class)
4/13 Easter Travel Day (no class)	4/15	4/17
4/20	4/22	4/24
4/27	4/29 **Exam 3**	5/1
5/4	5/6	5/8
5/11 Final Exam 1:30-3:30		