

California Lutheran University

Bachelor's Degree for Professionals

Course Number and Title: Math 245 Applied Calculus

Term / Year: Spring Term, 2016

Classroom: Oxnard Center Room 115

Time: Tuesdays and Thursdays, 6:00-8:15pm

Prerequisite: Math 115 Finite Mathematics or Math 145 Business Mathematics or an SAT Math score of 600 or above.

Important Dates:

- **Monday March 14, 2016: Last day to add a course**
- **Monday, April 11: Last day to drop a course without penalty**

Instructor: Ryan DeMoss, Visiting Lecturer

Contact Information: rdemoss@callutheran.edu

Office Hours & Location: Before/after class in the classroom, and by appointment

Course Description:

This course examines methods of mathematics used in business and economics, with a focus on problem solving and applications. It includes the ideas of differential calculus, including applications to marginal analysis (cost, revenue, profit), the elasticity of demand, and optimization. Concepts of integration up through substitution are included.

Textbooks/Required Readings:

The textbook required for this course is *Applied Calculus, 6th Edition* by Waner and Costenoble. There is also a student solutions manual available. This manual is not required for the course. You can buy a new or used textbook or rent a textbook. You can also buy or rent an etextbook.

Online Resource: For supplemental videos and practice problems see www.khanacademy.org

Calculator: I highly recommend using a TI 83 or TI 84 calculator for this class but it is not required. I will be using a TI 84 calculator. You will need at least a basic scientific calculator such as the TI-30X IIS for the course. Graphing calculators without symbolic algebra capabilities

will be allowed and are recommended (TI with a number 86 or lower such as TI 83 or TI 84), but not required.

Course Outcomes:

- Model real world situations involving quantities changing over time.
- Explore examples in which variables interact and analyze the effects of those interactions.
- Understand the mathematical foundations of optimization theory, and how optimization is used as a decision-making tool in management.
- Achieve *conversancy* with and *fluency* in the terminology, concepts, and techniques in the course. Mathematics is a language.
- Understand and use calculus as a way of thinking and a means for framing ideas. This includes:
 - Creating, reading, and reasoning about a variety of visual representations of data.
 - Understand, generalize, and apply mathematical techniques.
 - Synthesize solutions to complex problems by creating, solving and relating a sequence of simpler problems.
 - Make intra- and inter-disciplinary connections.
 - Apply / understand how to apply mathematical concepts to other fields of study, including those both inside and outside of the natural sciences.
 - Formulate and solve problems using multiple concepts of mathematics.
 - Apply mathematical concepts and methods to a multitude of situations and problems.
- Communicate mathematically. This includes:
 - Work actively and effectively in groups.
 - Listen to, read, and comprehend mathematics.
 - Verbalize mathematics clearly by discussing ideas and making coherent presentations.
- Use appropriate technology to analyze, resolve, and understand mathematical issues. This includes:
 - Identify the appropriateness of various technological tools.
 - Use technology proficiently to solve mathematical problems.
- Possess the self-confidence and enthusiasm to learn mathematics. Students should develop:
 - Intellectual curiosity that inspires further study.
 - Mathematical maturity to work independently and cooperatively

Course Assignments/Requirements:

Homework:

Homework will be assigned from the book based on the sections covered in class, requiring you to use the techniques discussed in class to solve problems. I will assign more odd problems than even problems, and encourage students to check their work and answers for the odd-numbered problems (while NOT SKIPPING the even-numbered problems!), so that they can monitor their progress and identify concepts that they struggle with. I also highly encourage students to ask questions in class and to come early to class for office hours, for help with areas they are struggling with. **Homework will not be graded for credit in this class (although it will have an impact (see below)).** Instead we will have “homework quizzes”, which are discussed below.

Homework Quizzes:

As stated above, instead of grading homework for credit, we will have homework quizzes several weeks throughout the semester. I will always let you know each week if we are going to have a quiz. These quizzes will reflect the same types of problems you work on in the homework assignments for the sections covered that week, and I will label which sections are being covered at the top of each quiz (sometimes, there may even be some of the same exact problems!). These quizzes will be fairly short, and they should be used to monitor your understanding of the material presented in class. I will usually grade them over the weekend and return them to you the next week, with feedback provided. Each quiz will be out of 10 points; **in addition to your total points earned out of 10, you may turn in your homework assignment for the covered sections to receive additional credit.**

- For a completed assignment (roughly 90-100%), you will earn 3 extra credit points toward your quiz.
- For a mostly completed assignment (roughly 70-90%), you will earn 2 extra credit points toward your quiz.
- For a minimally completed assignment (roughly 50-70%), you will earn 1 extra credit point toward your quiz.

For example, if the quiz covered sections 1.1-1.3, and you completed 75% of the assignment for those sections, and earned a 6/10 on the quiz, you would earn an extra 2 points, bringing your total score to an 8/10 on the quiz. However, you CANNOT score greater than 10/10 points on any quiz! If you earned a perfect 10/10 on the quiz and completed 100% of the assignment for those sections, you would NOT receive a 13/10, your score would just remain a 10/10.

This may send a message that homework is not necessary to pass this class. Be advised against this thought. This policy is simply used to create **more motive and incentive to do your homework** (mistakes are meant to happen in math! Mistakes are NOT a bad thing! This simply provides a means to deal with some of these mistakes that come up!). Nobody has ever become proficient in any skill without practice! Almost 100 percent of the time, any student who does not bother with homework, will not pass *any math class*!

Quizzes will account for 25% of your total grade, and the lowest quiz score will be dropped. Missed quizzes cannot be made up.

Class Activities and Attendance Policy:

Students are expected to attend class and participate in class activities. During class time students will apply concepts and practice solving problems. We will have in-class group work. We will

use class time as much as we can to practice working on problems. Attendance/class work will count for 10% of the course grade.

Exams:

We will have 2 tests that will count for 40% of the course grade. To help take away some of the “pressure” of exams, we will “weigh” the two exam scores differently. For whichever exam you earn the worse percentage, that score will be worth 15% of your grade, while the exam in which you earn the better percentage, will be worth 25% of your grade. We will have a cumulative final exam. The exam problems will be similar to problems worked on in class, and homework.

Final Exam:

We will have a cumulative final exam. It will take place during the week of February 15 – February 18. I will let you know the date and time ASAP. The final will account for 25% of the course grade.

Grade Distribution:

Here is how your grade will be calculated in this class:

- Homework Quizzes – 25%
- Attendance/Class work – 10%
- Exams – 40%
- Final Exam – 25%

Your final letter grade will be found using your final percentage with the following chart:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59

Student Workload/Carnegie Hours:

The expectation for this course is that you will spend the equivalent of 4 hours per week in class (an hour is defined as 50 minutes), and you will spend approximately 10 hours per week studying and completing assignments for this course.

Activity	Instructor-Led Hours	Homework Hours	Remarks
	Weekly/Course	Weekly/Course	

Readings	3/30	Over 10 weeks
Weekly Classes	4 – 4.5/~ (48 – 49)	Includes final exam and tests
Khan Academy videos	Varies/ ~(1 – 2)	Over 10 weeks, with uneven distribution
Homework	5/50	Over 10 weeks, varies by student
Test Prep	2/20	Over 10 weeks, uneven distribution, varies by student
Final Exam Prep	N/A / 5	Varies by student
Totals	50	105

Course Evaluations Statement:

All course evaluations are conducted online. Your feedback is important to us. You will receive an email message reminding you when the website is open for your feedback. The link is: <http://courseval.callutheran.edu>

Disability Statement:

California Lutheran University is committed to providing reasonable accommodations in compliance with ADA of 1990 and Section 504 of the Rehabilitation Act of 1973 to students with documented disabilities. If you are a student requesting accommodations for this course, please contact your professor at the beginning of the semester and register with the Disability Support Services Coordinator, Wendy Jimenez, for the facilitation and verification of need. The Disability Support Services Coordinator is located in the Center for Student Success Office located at 3259 Pioneer Street, and can be contacted by calling 805.493.3260 or emailing wjimene@callutheran.edu.

Statement on Academic Honesty:

The educational programs of California Lutheran University are designed and dedicated to achieve academic excellence, honesty and integrity at every level of student life. Part of CLU’s dedication to academic excellence is our commitment to academic honesty. Students, faculty, staff and administration share the responsibility for maintaining high levels of scholarship on campus. Any behavior or act which might be defined as “deceitful” or “dishonest” will meet with appropriate disciplinary sanctions, including dismissal from the University, suspension, grade F in a course or various forms of academic probation. Policies and procedures regarding academic honesty are contained in the faculty and student handbooks.

Plagiarism, cheating, unethical computer use and facilitation of academic dishonest are examples of behavior which will result in disciplinary sanctions. Plagiarism includes, but is not limited to:

- . word for word copying without using quotation marks or presenting the work as yours
- . using the ideas or work of others without acknowledgement

- not citing quoted material. Students must cite sources for any information that is not either the result of original research or common knowledge.

Standards of Student Conduct Statements:

- [Student Life Handbook](#)
- [Academic Honesty Statement](#)

Pearson Library:

Pearson Library provides access to scholarly books, journals, ebooks, and databases of full text articles from scholarly journals. To begin using these materials, visit the library web page

<http://www.callutheran.edu/library>

There are many ways to contact Pearson Library for research assistance, no matter where you are!

- Email Yvonne Wilber (Professionals liaison) at ywilber@callutheran.edu
- General Library email: CLUlibrary@callutheran.edu
- Library main phone: 805.493.3250
- Text us your question: 805.493.3867
- Get more help at: <http://www.callutheran.edu/library/help/>

CLU Writing Center

The Writing Center provides 1:1 writing consultations, in-person and online, with trained undergraduate and graduate writing consultants. We welcome all writing-related projects at any stage of the writing process across the diverse disciplines of study at CLU. The Writing Center also hosts writing workshops, provides in-class visits, facilitates writing groups, and offers a writer's studio option for longer, sustained projects. Services suit writers of all levels, including traditional undergraduates, graduate students from all fields, all English language learners, and accomplished scholars alike. All members of the CLU community with an @callutheran.edu email address are welcome to make use of our services. For more information, please visit at www.callutheran.edu/writing_center or call 805-493-3257. Please schedule appointments online through MyCLU Blackboard with the yellow "The Writing Center" icon in "Tools," or stop by The Writing Center itself, located in the Darling Collaboration Suite of Pearson Library.

Help Desk

Students may contact the Help Desk about telephone, network, wireless network, software questions password problems, hardware problems, and general consultation (i.e. you cannot log into your MyCLU portal, or you are having problems with Blackboard). Please click on the following link for more information

http://www.callutheran.edu/iss/technology_services/helpdesk.php or call: 805.493.3698

Veterans Resources

If you are a veteran, military member, or a family member of a veteran or military member, please refer to Cal Lutheran's Veterans Resources webpage for important information: <http://www.callutheran.edu/veterans/> Also, if you are a veteran receiving benefits and you are struggling in a class, you most likely qualify for free tutoring. Please contact the Veterans Coordinator, Jenn Zimmerman, veterans@callutheran.edu or 805.493.3648, for more information.

University Harassment Policy

Be civil to each other, both on- and offline. For information on the University's **student harassment policy and rights**, please go to the following link:

[Student Life Handbook](#)

Sexual Misconduct:

California Lutheran University does not tolerate any degree of sexual misconduct on or off-campus. We encourage you to report if you know of, or have been the victim of, sexual harassment, misconduct, and/or assault. If you report this to a faculty member, she or he must notify Cal Lutheran's Title IX Coordinator about the basic facts of the incident. More information about your options for reporting can be found at: <http://www.callutheran.edu/title-ix/>

General Notes About This Class:

Behavior: Classroom behavior should support and enhance learning. Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class.

Participation: All students are expected to actively participate in this class. This can include asking relevant questions in class, participating in class discussions and other in-class activities, helping other students, coming to office hours with questions

Ask Questions: *Please* if you don't understand something, or you aren't clear about something, or if you think I (or the book) have made a mistake (it has been known to happen), or if you have any other questions, please ask. Don't let confusion accumulate. If you don't want to ask in class, come to office hours and ask. It is much easier to ask a question now than to miss it on the test. And trust me, you will get much more out of the class if you become actively involved in it.

Showing Work: It is much more important that you understand the processes involved in solving problems than you just giving me the right answer. If I see from your work that you understand what you are doing, I will usually give partial credit for a problem, even if you made a mistake somewhere along the line. If you don't show your work, it must be a problem for which it is reasonable that you could do it in your head. Also, for these problems, it is still better to show work, since if you miss a question and no work is shown, then I cannot give you any partial credit. If you can really do something in your head, that's great, but when in doubt, write it down. It is also very important that you use correct notation. I will correct your notation the first few times, but I will start counting it wrong if you continue to write things incorrectly. In addition, please write clearly and legibly. If I can't read it, I won't grade it.

Grading Policies:

- Handing in work from problem sets: Unless the instructor requests otherwise, all problem sets must be turned in to the instructor, handwritten, by the student. Scanned and

emailed, campus mailed, “slipped under the door”, and “turned in by a friend” assignments will receive no credit unless the instructor gives permission beforehand.

- Missed quizzes and exams: May be made up at the instructor’s discretion. If the student notifies the instructor at least 24 hours before a scheduled exam that he or she will be missing class, and if the reason is appropriate, then the instructor may allow the student to make up the work at a time convenient to the instructor. If no notification of absence is given, the instructor will only consider allowing the student to make up the work if the student missed class as a result of an appropriate, documented event requiring emergency response personnel. In any case, any assignment that is strictly attendance-based may not be made up.

Tentative Schedule

Week	Dates	Material	Notes
1	3/1 3/3	Intro, syllabus, review of algebra (Ch. 0) Functions/Linear Models (Ch. 1)	Review
2	3/8 3/10	Continue Lin. Models Quadratic, Exponential, and Logarithmic Functions (9.1-9.3)	Review
3	3/15 3/17	Limits and Continuity (10.1-10.2) Continuity contd. 10.3 / Intro to the derivative (10.4-10.5)	Exam 0.1-1.3 and 9.1-9.3
4	3/22 3/24	Algebra of derivative/ basic rules of derivatives (10.6- 11.1) Marginal Analysis / Product and Quotient Rules (11.2-11.3)	
5	3/29 3/31	Derivatives of Log. And Exp. Functions 11.5 Chain Rule / Implicit and Logarithmic Differentiation (11.4 / 11.6)	

6	4/5 4/7	Maxima and Minima / Optimization 12.1-12.2 Higher-Order Derivatives 12.3	Exam 10.1-11.6
7	4/12 4/14	Calculus and Graphs 12.4 Related Rates and Elasticity of Demand 12.5-12.6	
8	4/19 4/21	Antiderivatives and indefinite integrals 13.1 Integration by Substitution 13.2	
9	4/26 4/28	Riemann Sums and definite integrals 13.3 Fundamental Theorem of Calculus 13.4	
10	5/3 5/5	Review derivatives and integrals and FTC Review for Final	
11	5/10 5/12	Review for Final Final Exam	Final Exam

Disclaimer

This syllabus is subject to change. Every effort will be made to alert students to changes that occur in a timely manner.