

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
LA SIERRA UNIVERSITY

## MATH 131 - CALCULUS I (4 UNITS)

REVISED SYLLABUS

SPRING 2009

**Instructor** Wil Clarke. Office: 256 Price Science Center, Phone x2548; home phone 687-4556, (please don't call after 10:00 p.m.) e-mail: wclarke@lasierra.edu. My office hours are listed below and posted at my office door. If those are inconvenient, please let me know and we'll find a time to meet that is convenient to each of us. Web page: <http://faculty.lasierra.edu/~wclarke>.

**Text**

1. Larson, Hostetler & Edwards *Calculus* 8<sup>th</sup> ed. (2006) Houghton-Mifflin, Boston MA
2. Scientific Calculator (a TI-89 graphing calculator is highly recommended.)
3. Recommended: MathCAD<sup>®</sup> software if you have your own personal computer. A student version is available for about \$135.00. There is a summary of useful MathCAD<sup>®</sup> features at my website. I encourage you to check it out.

**Bulletin Description** Functions, limits, continuity, definition of derivatives, techniques of differentiation, applications of derivatives, definite and indefinite integral, mean value theorem, fundamental theorem of calculus. Prerequisite: MATH 121, 122 or secondary school equivalent.

**Objective** To introduce the student to methods of differential calculus and to develop skills in differentiation. To introduce the student to appropriate uses of MathCAD<sup>®</sup>

**Course Requirements**

1. **Homework** Homework will be assigned each class period and is due at the beginning of the next class period. Late homework will not be accepted. It is impossible to pass the class without turning in most of the homework. MathCAD<sup>®</sup> assignments made on Monday and Tuesday of any week are due on Friday of that week. MathCAD<sup>®</sup> assignments made on Thursday and Friday are due on Tuesday of the following week. If you work with someone else (and I encourage this) put both of your names on each page of the printout and circle your name for credit. You will be required to demonstrate proficiency on MathCAD<sup>®</sup>.

2. **Quizzes** There will normally be a five minute quiz at the beginning of each class period. If you miss it, you will not be able to make up this quiz for any reason

3. **Tests** Tests and exams determine most of your grade for this class. Make up tests will not be given (See note under 4, Final Exam below). Students who leave the room during a test or exam will not be permitted to return while it is in progress. You will not be allowed to use a calculator on parts of tests and the final exam. Tests and exams will include MathCAD<sup>®</sup> topics.

4. **Final Exam** A score of 50% or more on the final exam is a necessary, but not sufficient, condition to pass the course. The final exam will be comprehensive and divided into five parts. The first four parts will correspond to the four tests listed below. If you do better on any part of the final exam than you did on the corresponding test, I will give you the higher of the two grades for that test. See the note about the final examination schedule below. The MathCAD<sup>®</sup> test will count as the fifth part of the final.

5. **Outside Reading** You are required to read six articles from current journals and report on these in the manner specified in class. You are also required to find two helpful web sites that feature calculus topics. To report on the web sites you find. List the URL, write a brief summary of materials you found that were helpful to you, and print out several web pages as samples of what you found.

6. **Attendance** Attendance is expected and you are responsible for all material presented and assignments made in class. A portion of your grade is based on your participation in class. You are encouraged to ask questions in class. Asking questions can only help your participation grade. Changes in this syllabus become effective after being announced to

the class. You are responsible for these, even if you were absent when the changes were announced. The participation grade is mine to give based only on my perception of your performance. Being absent for 10% or more of the classes will result in an automatic failing grade. Any action of yours which is a disruption to class or a distraction to other students will not be tolerated. Examples include, but are not limited to: cell phones ringing (even on vibrate), beepers going off, inappropriate dress or language, holding conversations during class, entering and leaving the room at inopportune times, and interrupting the teacher during lecture. Penalties may include removal from class and/or lowering of class grade.

**Plagiarism and Cheating** The following statement is taken from the Academic Integrity Faculty Manual of La Sierra University (Spring 2009)

All students are expected to read and honor the Academic Integrity Policy, which is printed in the University Bulletin. As stated in the preamble, “embracing the principles of Academic Integrity...provides a vital foundation for this community of scholars and its larger society.”

By attending the University, you have agreed to the following statement:

I will act with integrity and responsibility in my activities as a La Sierra University student or faculty member. I will not participate in violations of academic integrity, including plagiarism, cheating, or fabricating information. I will not stand by when others do these things. I will follow the academic integrity policy.

Plagiarism is defined in the Academic Integrity Policy as follows:

Plagiarism occurs when a writer appropriates another’s ideas without proper acknowledgement of the source or uses another’s words without indicating that fact through the use of quotation marks.

Note that while some assignments may be done in collaboration with a classmate, most should be done individually. If you have any questions about your assignment, plagiarism, or the Academic Integrity Policy, always ask your instructor! [Adapted from William R. Morgan, The College of Wooster]

You are encouraged to seek assistance from faculty or students in doing your homework. However work that is done primarily by someone else is unacceptable and may result in your failing the course. Plagiarism and/or cheating on tests, exams or papers means an automatic zero on that occasion, a letter to the dean, and possible further disciplinary action.

**Disability** La Sierra University complies with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973. Any student with a documented disability (physical, learning, or psychological) needing academic accommodations should contact the Office of Disability Services (ODS) as early in the quarter as possible. All discussions will remain confidential. Please contact the ODS (La Sierra Hall, Suite 100 – 951-785-2412) for additional information. Students who qualify for accommodations, must bring their ODS paperwork to their instructor no less than 3 school days before they wish such accommodations to take effect.

**Final examination schedule note from the CAS bulletin** “A four-day examination schedule allowing a two-hour period for each class is printed in the schedule of classes. Students are required to take the scheduled final examination at the appointed time and place in order to secure credit. . . . Exceptions to the examination schedule are granted only for emergency situations.”

**Grading Scheme**

Homework	12%	Grade assignment will approximate:	
In-Class Tests	45%	85—100%	A range
Final Exam	25%	75—85%	B range
Participation	5%	60—75%	C range
Outside Reading	5%	50—60%	D range
Quizzes	8%	0—50%	F

There are no such grades as “C–” or “D–” in this class.

**Outline:**

	Date		Sections	Paper & Pencil Homework	MathCAD Homework
March	30	M	P.1-3	P.3:1,3,13-16,22,26,29-36,47-52,59-62,83,93	
	31	T	1.1& MC	1.1:1-10	
April	2	R	1.2	1.2:1-3,5,7-19,23,24,27	
	3	F	1.3	1.3:multiples of 5 to 105,113,121	1.3:17,29,53,59
	6	M	1.4	1.4:1-7,9,13,14,22,31,34-37,44,52,63,75,81	1.4:8,16,23,58
	7	T	1.5	1.5:1-5,11,16,22,28,35,43,59,62,64	1.5:29-32,44,60
	9	R		Catch Up	
*	10	F	2.1	2.1:1,2,13,18,19,22,36-40,57,71,74,80-86	2.1:25,29,63,68,87,90
	13	M	Test	Chapters. P & 1	
	14	T	Review	Test	Chap 1 MathCAD due
	16	R	2.2	2.2:1-3,5,9,14,19,22,33,44,45,57,61,63,90	2.2:8,20,46,56,63
	17	F	2.3	2.3:1,5,7,11,19,22,26,34,39,45,50,70,71,94,123	2.3:54-58,63,68,102
	20	M	2.4	2.4:multiples of 5 to 105	2.4:22,48,68,77,79
	21	T	2.5	2.5: multiples of 5 to 65	2.5:51,53
	23	R	2.6	2.6:multiples of 3 to 54	
	24	F		Catch Up	
	27	M	Test	Chapter 2	Chapter 2
	28	T	Review	Test	Chap 2 MathCAD due
	30	R	3.1	3.1:multiples of 5 to 65	3.1:21,26,32,33,41,49
May	1	F	3.2	3.2:multiples of 5 to 85	3.2:47,48
	4	M	3.3	3.3:multiples of 5 to 95	3.3:49,76,82
	5	T	3.4	3.4: multiples of 5 to 80	3.4:41,43,66,71
	7	R	3.5	3.5: multiples of 5 to 105	3.5:11,36,48,78
	8	F	3.6	3.6: multiples of 3 to 33, 40, 43	3.6:35,55,58,61,75
	11	M	3.7	3.7: multiples of 3 to 42	3.7:32,46,57
	12	T	3.8	3.8: multiples of 3 to 27, 37	3.8:11,13,29
	14	R	3.9	3.9: multiples of 5 to 55	3.9:3,6,49,51
	15	F		Catch Up	
	18	M	Test	Chapter 3	Chapter 3
	19	T	4.1	4.1:multiples of 5 to 75	Chap 3 MathCAD due
	21	R	4.2	4.2:1,4,7,10,15,18,21,24,29,31,35,39,42,49,54,60	4.1:19,22,38,
§	22	F	4.3	4.3:1,3,6,10,14,19,25,31,33,36,42,47,49,56	4.2:6,20,23,32,38,43
	25	M		Memorial Day	4.3:
	26	T	4.4	4.4:multiples of 5 to 100	4.4:13,18,28,43,64
	28	R	4.5	4.5:multiples of 5 to 105	4.5:23,26,49,77,93,94,97,126
	29	F	4.6	4.6:multiples of 5 to 50	4.6:14,17,36,37,46,49
June	1	M	Test	Chapter 4	Chapter 4
	2	T	Review	Test	Chap 4 MathCAD due
	4	R			
	5	F	Test	MathCAD test	

\* Last day to drop a class with no record on transcript is Friday, April 10.

§ Last day to drop a class with a “W” grade is Friday, May 22.

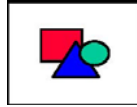
**Final Exam: Monday, June 8 at 8:00 a.m.**

	Date		Sections	Topic
March	30	M	P.1-3	Functions and Graphing
	31	T	1.1& MC	Preview of Calculus/MathCAD
April	2	R	1.2	Numerical & Graphical Limits
	3	F	1.3	Evaluating Analytical Limits
	6	M	1.4	Continuity & One-sided Limits
	7	T	1.5	Infinite Limits
	9	R		
*	10	F	2.1	The Derivative and the Tangent Line Problem
	13	M	Test	Chapters. P & 1
	14	T	Review	Test
	16	R	2.2	Basic Differentiation Rules and Rates of Change
	17	F	2.3	Product and Quotient Rules & Higher Order Derivatives
	20	M	2.4	The Chain Rule
	21	T	2.5	Implicit Differentiation
	23	R	2.6	Related Rates
	24	F		
	27	M	Test	Chapter 2
	28	T	Review	Test
	30	R	3.1	Extrema on an Interval
May	1	F	3.2	Rolle's Theorem and the Mean Value Theorem
	4	M	3.3	Increasing and Decreasing Functions and the First Derivative Test
	5	T	3.4	Concavity and the Second Derivative Test
	7	R	3.5	Limits at Infinity
	8	F	3.6	A Summary of Curve Sketching
	11	M	3.7	Optimization Problems
	12	T	3.8	Newton's Method
	14	R	3.9	Differentials
	15	F		
	18	M	Test	Chapter 3
	19	T	4.1	Antiderivatives and Indefinite Integrals
	21	R	4.2	Area
§	22	F	4.3	Riemann Sums
	25	M		Memorial Day
	26	T	4.4	The Fundamental Theorem of Calculus
	28	R	4.5	Integration by Substitution
	29	F	4.6	Numerical Integration
June	1	M	Test	Chapter 4
	2	T	Review	Test
	4	R		
	5	F		

Εἰ δὲ τις ὑμῶν λειπεταὶ σοφίας,  
αἰτεῖτω παρὰ τοῦ δίδοντος Θεοῦ  
πᾶσιν ἁπλῶς καὶ μὴ ονειδίζοντος,  
καὶ δοθησεται αὐτῷ.

If any of you need wisdom, you  
should ask God, and it will be  
given to you. God is generous  
and won't correct you for asking.

James I:5 (Nestle & CEV)



<b>Hour</b>	<i>Monday</i>	<i>Tuesday</i>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
8:00			University		
9:00	Calculus I	Calculus I	Studies	Calculus I	Calculus I
10:00	Applications of Math	Applications of Math		Applications of Math	Applications of Math
11:00	Seminar	Assembly		Chapel	Dept Mtg
12:00	Lunch	Lunch	Lunch	Lunch	Lunch
1:00					
2:00	Office	Office	Office	Office	
3:00	Directed Study	Abstract		Abstract	
4:00		Algebra		Algebra	
5:00	CAS mtg				