

ANALYSIS II

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

LA SIERRA UNIVERSITY

MATH 432 (4 UNITS)

REVISED SYLLABUS

SPRING 2010

Instructor Wil Clarke. Office: 256 Price Science Center, Phone x2548; home phone 951-687-4556, please don't call after 10:00 p.m. e-mail: wclarke@lasierra.edu. Web page: <http://faculty.lasierra.edu/~wclarke> My office hours are listed below and posted on 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.

Text Required: Steven R. Lay: *Analysis with an Introduction to Proof* 4th Edition, 2005 Pearson Education, Upper Saddle River NJ; ISBN 0-13-148101-0. Some free books can be found at <http://www.youpublish.com>, <http://ramanujan.math.trinity.edu/wtrench/misc/index.shtml>, and <http://synechism.org/drupal/>.

Bulletin Description The topology of the real line, metric spaces, uniform convergence and continuity, the derivative, the Riemann integral, outer measure. Offered alternate years. Prerequisite: MATH 415 or consent of the instructor.

Objectives The student will be able to

- Demonstrate proficiency in Real Analysis (tests and exams)
- Use websites to investigate topics of Real Analysis (written reports)
- Read and write mathematical proofs (tests, exams, and in-class demonstrations)
- Read articles in mathematical publications (reports)
- Read and devise counterexamples to erroneous mathematical statements (written reports and in-class demonstrations)
- Understand and develop the mathematical concepts of continuity, differentiation and integration of functions (tests, exams, and in-class demonstrations)

Course Requirements

1. Homework Homework will be assigned on a regular basis and is due at the beginning of the designated class period. Late homework will not be accepted. It is impossible to pass the class without turning in most of the homework. The homework will have two emphases, a. computational to establish an understanding of the concepts and b. demonstration to establish why concepts are true or false. You will be expected to present at least five of your homework proofs on the board in class. This presentation will include class discussion of your proof and how it can be improved.

2. Tests and Exams Tests and exams determine most of your grade for this class. Make up tests will be given only at the discretion of the instructor and only for extreme personal reasons. The final exam is required to pass the course.

3. 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 Analysis topics, other than listed in my "Helpful URL's" site. 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.

4. Attendance Attendance is expected and you are responsible for all material presented and assignments made in class. Being absent for 10% or more of the classes will result in an automatic failing grade.

5. Participation 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. You will be expected to present proofs in class.

Plagiarism and Cheating 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. You are responsible for knowing the university policies and consequences of academic dishonesty. These may be found at <http://www.lasierra.edu/integrity>.

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. Examinations may not be taken before or after the scheduled period, nor may the time of an examination be changed without authorization by the dean of the school of the student’s enrollment.” You must contact the CAS Dean for permission to take the final examination at a non-scheduled time.

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.

Grading Scheme

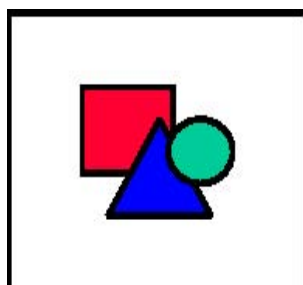
		Grade assignment will approximate	
Homework & Essays	12%	75–100%	A range
In-Class Tests	53%	65–74%	B range
Final Exam	25%	50–64%	C range
Participation	5%	40–49%	D range
Outside Reading	5%	0–39%	F

There are no such grades as "C-" or "D-" in this class.

Εἰ δὲ τις ὑμῶν λείπεται σοφίας,
αἰτεῖτω παρὰ τοῦ δίδοντος Θεοῦ
πᾶσιν ἁπλῶς καὶ μὴ ονειδίζοντος,
καὶ δοθήσεται 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)



Outline: Note that the topics listed below are a suggestion and may be replaced, added to, or displaced.

	DATE		Sections	Topics	Homework
March	29	M	23	Review final exam; Uniform Continuity	23:1-8
	31	W	25	The Derivative	25: 1-6, 8, 11
April	5	M			
*	7	W	26	The Mean Value Theorem	26: 1-6, 8, 11, 12
	12	M			
	14	W	Test	<i>Test Sections 23, 25, 26</i>	
	19	M	27	L'Hospital's Rule	27: 1-5,11, 13
SEW	21	W	28	Taylor's Theorem	28: 1-6
	26	M			
	28	W	29	The Riemann Integral	29:1-5, 9, 13, 14, 16
May	3	M			
	5	W	Test	<i>Test Sections 27—29</i>	
	10	M	30	Properties of the Riemann Integral	30:1-3,9,11,12,15,19,20
	12	W	31	The Fundamental Theorem of Calculus	31:1-7, 17, 18
	17	M			
§	19	W	32	Convergence of Infinite Series	32: 1-8
	24	M			
	26	W	Test	<i>Test Chapter 7</i>	
	31	M	<i>Holiday</i>	<i>Memorial Day Celebrated</i>	
June	2	W			
	7	M	<i>2:00 p.m.</i>	<i>Final Exam</i>	

* Last day to drop a class with no record on transcript is Friday April 9.

§ Last day to drop a class with a "W" grade is Friday, May 21.

SEW Spiritual Emphasis Week

Final Exam Monday, June 7, 2010 at 2:00 p.m.

Hour	Monday	Tuesday	Wednesday	Thursday	Friday
8:00					
9:00			University		
10:00	Applications of	Mathematics	Studies	Applications of	Mathematics
11:00	Seminar	Assembly	PPRC	Chapel	Dept Mtg
12:00	Lunch	Lunch	Lunch	Lunch	
1:00					
2:00	Office	Office	Office	Office	
3:00	Analysis II	College	Analysis II	College	
4:00	Analysis II	Geometry	Analysis II	Geometry	
5:00	CAS meeting	N/A		N/A	