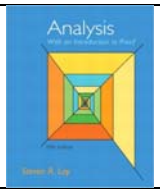
University of North Texas at Dallas
Fall 2016
SYLLABUS

MATH 5611.001	**Mathematical Analysis**		**3Hrs**
Department of	Mathematics and Information Sciences	**Division of**	Liberal Arts & Life Sciences
Instructor Name:	*Dr. Noureen Khan*		
Office Location:	*223 DAL2*		
Office Phone:	*972 338 1567*		
Email Address:	noureen.khan@untdallas.edu (Use this address only)		
Office Hours:	Monday & Wednesday 8: 00 am - 10: 00 am Saturday 8:00 am – 9:00 am VIRTUAL HOURS: Saturday 12:00 pm – 2:00 pm or by appointments.		
Classroom Location:	*DAL2 – 240*		
Class Meeting:	Saturday 9:00 am – 11:50 am		
Course Catalog Description:	This is the first part of a two-semester course in Introduction to Mathematical Analysis. Topics include: real number system; sequences and series; limit and differentiation, the Riemann integral, sequences of functions, elementary metric space theory including compactness, connectedness and completeness.		
Prerequisites:	Admission to M.Ed. program or consent of instructor		
Required Text:	 *Analysis with an Introduction to Proof, 5/E Steven R. Lay* *ISBN-10: 032174747X*		
Reference Books	• Walter Rudin, Principles of mathematical analysis, McGraw-Hill, New York 1964 • Edward D. Gaughan, Introduction to analysis, Brooks/Cole Publishing Co., 1993.		
	UNT Dallas Library: phone: (972) 780-3625; web: http://www.unt.edu/unt-dallas/library.htm UNT Dallas Bookstore: phone: (972) 780-3652; e-mail: 1012mgr@fheg.follett.com		
Calculator Policy:	This course **DOES NOT REQUIR** a graphing calculator.		

Course Goals: The goals of this course are to	
1.	Demonstrate the ability to use different strategies to proof mathematical statements.
2.	Know different types of number system; sequences and series, convergence and continuity.
3.	Learn the concepts of limit, differentiation, the Riemann integral, sequences of functions.
4.	Learn the concepts of elementary metric space theory.
5.	Learn about compactness, connectedness and completeness.

Learning Outcomes (Program):	
Mathematical Reasoning:	
MR 1.	Read, understand, formulate, explain, and apply mathematical statements.
MR 2.	Formulate conjectures by considering examples that move from the specific to the general.
MR 3.	Identify prove or disprove approach to Testing Statements methods.
MR 4.	State and apply Mathematical Theorems to prove mathematical conjectures.
MR 5.	Use a variety of techniques – such as, proof by contradiction, or direct application of axioms and previously proven theorems – to prove propositions.
General skills:	
GS 1.	Solve mathematical problems individually and cooperatively.
GS 2.	Formulate strategies for solving novel analytical – both theoretical and applied – problems.
GS 3.	Communicate, both verbally and in writing, mathematical ideas at a variety of levels from technical to intuitive.

Course Outline:

This is the first part of a two-semester course in Introduction to Mathematical Analysis. In this course, students will learn about the theoretical foundations of mathematical analysis, or in other words, the working mechanism of calculus. The course is also aimed at improving students' proof writing abilities and getting them more comfortable with precise mathematical rigor. Students will learn to think clearly and critically to be able to prove basic mathematical statements on their own. Emphasis will be placed upon in depth understanding and constructing mathematical proofs. Attendance is essential for effective learning and is required for this class. UNT Dallas provides all possible help to assure student success, such as virtual library and writing center (math lab) where help is available during weekdays. Due to the nature of this course, you are encouraged to make regular visits during my office hours or make an appointment for help.

Course Evaluation Methods:

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Homework – End of chapter problems
Quizzes – Weekly short quizzes
Exams – **Two** Midterm Exams
Project – Problem Solving & Technology
Final Exam – Comprehensive **Final Exam**.

Reading – The reading is fundamental component for this course. You are expected to read the assigned section before coming to class.

Home Work – As a general rule, homework will be assigned in every class meeting. You should do all assigned problems in a spiral notebook.

Quizzes – Weekly short quizzes will be over the material covered in previous class (week) meetings and assigned homework problems.

Project – A project to cultivate mathematical reasoning and critical thinking with technology.

Instrument	**Value**	**Points**	**Percentages %**
Quizzes	Weekly Quiz	125	25
Exams	Two Midterm Exams	200	40
Class Project	Presentation	50	10
Final Exam	Comprehensive Final Exam	125	25
Total:		**500**	**100**

Grade Determination:

Grade	Points	Percentage %
A	450 or more	90 or better
B	400 – 449	80 – 89
C	350 – 399	70 – 79
D	300 – 349	60 – 69
F	299 or less	less than 60

Class room Policies:

- *Come prepared* –
- Use of Cell Phones & other Electronic Gadgets (Laptops, IPADS, etc.) other than class related work is prohibited during lecture.
- Participate in class discussions, ask questions and show respect to others.
- No eating or drinking (other than water) during class meeting.
- Maintain healthy learning environment.

Anyone caught cheating will receive an **F** for the course. Cheating includes receiving help from anyone or anything that is not allowed on homework, test or final exam.

CLASS SCHEDULE

Note: This schedule is subject to change by instructor at any time.

Monday	TOPICS	
Aug. 27	Syllabus & Pre – Test Introduction to Mathematical Analysis Chapter – 1 Techniques of Proof I	Pre-Test
Sep. 03	Chapter – 1 Techniques of Proof II	Quiz -1
Sep. 10	Chapter – 2 Basic Set Operation and Axioms of Set Theory	Quiz -2
Sep. 17	Chapter – 3 Natural Numbers & Induction	Quiz -3
Sep 24	Chapter – 3 Topology of Real Numbers	Quiz -4
Oct 01	Chapter – 3 Metric Spaces	Quiz -5
Oct 08	**Review & Exam #1**	
Oct 15	Chapter - 4 Convergence and Limit Theorem	
Oct 22	Chapter - 4 Monotone and Cauchy sequences	Quiz -6
Oct 29	Chapter – 5 Differentiation	Quiz -7
Nov 05	Chapter – 5 Differentiation	Quiz -8
Nov 12	Chapter – 6 Integration	Quiz -9
Nov 19	Chapter – 6 Integration	Quiz -10
Nov 26	**Review & Exam #2**	
Dec 03	Project Presentations	
Dec 10	***Final Exam*** ***9:00am – 12:00pm***	

University Policies and Procedures:

Students with Disabilities (ADA Compliance):

The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. For more information, you may visit the Office of Disability Accommodation/Student Development Office, DAL 2 Suite 115 or call at 972-338-1779.

Student Evaluation of Teaching Effectiveness Policy:

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Academic Integrity:

Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of conduct and Academic Dishonesty policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Conduct at http://www.unt.edu/csrr/student_conduct/index.html for complete provisions of this code.

Bad Weather Policy:

On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. *Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.*

Attendance and Participation Policy:

The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent. ***Excessive absences (more than 3 classes, with or without excuse) may result in being dropped from the class or receiving an F for the course.***

Diversity/Tolerance Policy:

Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Center for Student Rights and Responsibilities as the instructor deems appropriate.