

University of North Texas at Dallas

Spring 2012

SYLLABUS

MATH 2770 (Discrete Mathematical Structures) (3Hrs)			
Department of	Mathematics and Information Sciences	Division of	Liberal Arts and Life Sciences
Instructor Name:	Dr. Ali Shaqlaih		
Office Location:	Dallas- 2, Room 227		
Office Phone:	972-338-1569		
Email Address:	ali.shaqlaih@unt.edu		
Office Hours:	Office: T: 1:00-5:00 pm, W: 9:00-10:00. Lab: R: 1:00-5:00 pm		
Classroom Location:	DAL2- 242		
Class Meeting Times:	T, R: 8:30-9:50 am		
Course Catalog Description:	The purpose of this course is to extend your knowledge about the fundamental mathematical structures. To this end, we will cover Introductory mathematical logic, mathematical induction, relations and functions, combinatorics, counting techniques, graphs, trees, and finite automata theory.		
Prerequisites:	MATH 1710; CSCE 1020 or CSCE 1030 (may be taken concurrently).		
Required Text:	<ul style="list-style-type: none"> • <i>Discrete Mathematics</i>, an introduction to mathematical reasoning (Brief Edition) by Susanna Epp, 7th ed., Brooks/Cole- Cengage. ISBN-13: 978-0-495-82617-0 • Class notes and all the handouts distributed by the instructor in this class are as important as the textbook. 		
Recommended Texts and References:	<ul style="list-style-type: none"> • <i>Discrete Mathematics and its Applications</i> by Keneth Rosen, 6th edition, McGraw Hill, ISBN: 978-0-07-288008-3 • <i>Discrete Mathematics and Combinatorial Mathematics</i>, an applied introduction by Ralph Grimaldi, 5th edition. ISBN: 780201726343. 		
Access to Learning Resources:	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@fhg.follett.com		

Course Goals	
	<p>The goal of this course is to:</p> <ul style="list-style-type: none"> • Be able to construct simple mathematical proofs and possess the ability to verify them. • Possess the mathematical knowledge and maturity that are required for upper level computer science courses. • Become confident in your ability to do mathematics with understanding • Explore Mathematics and become a problem solver. • Learn to reason, justify and communicate mathematically • Develop problem solving skills that incorporate multiple viewpoints and differing contexts in their analysis • Think critically and creatively and learn to apply different system of analysis
Learning Objectives/Outcomes:	
	<ul style="list-style-type: none"> ○ Course Objectives: At the end of this course, the student will be able to: <ul style="list-style-type: none"> • Recognize the notions of conditional proposition and logical equivalence • Correctly use different methods of proofs • Identify the notions of necessary condition, sufficient condition, the converse and the contrapositive of a proposition and prove/disprove conditional propositions • Apply the principle of mathematical induction in appropriate settings • Perform various operations with sets, relations, functions and graphs • Solve problems in counting techniques and combinatorics including discrete probability • Explain and use the concepts of graphs and trees. ○ Mathematics Program Learning Outcomes: Students in this course will be able to: <ul style="list-style-type: none"> • Communicate with technical precision in writing mathematical ideas. • Read, understand, formulate, explain, and apply mathematical statements. • State and prove important results in key mathematical areas including algebra and analysis.

Course Outline

Priority will be given to understanding the material in depth rather than covering more topics. This schedule is subject to change by the instructor. Any changes to this schedule will be announced in class. We will try to cover as much as we can from the following topics as time permits.

Chapter #	TOPICS	TIMELINE
Chapter 1	Speaking Mathematically	Weeks of Jan. 16
Chapters 2, 3	Logic	Weeks of Jan.23, 30
Chapter 4	Number Theory	Weeks of Feb 6, 13
Chapter 5	Sequences, Recursion and Mathematical Induction	Weeks of Feb 20, 27
Chapter 6	Set Theory	Weeks of March 5
Chapter 7	Functions	Weeks of March 12, 26
Chapter 8	Relations	Week of April 2
Chapter 9	Counting and Probability	Weeks of April 9, 16
Chapter 10	Graphs and Trees	Week of April 23, 30

Course Evaluation

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

Exams – Written in-class closed-book tests to measure knowledge of presented course material.

Homework – Written assignments designed to supplement and reinforce course material.

Participation- Class participation to ensure effective and cooperative learning.

Quizzes – Weekly quizzes to help student keep with the material.

Grading Matrix:

Instrument	Value	Total
Homework Assignments	3 Hws at 20 points each	60
Quizzes	6 quizzes at 30 points each	180
Hour Exams	3 exams at 150 points each	450
Attendance & Participation	Participation	60
Final Exam	One comprehensive exam	250
Total:		1000

Grade Determination:

The following standard grading scale will be used to determine your final letter grade:

A = 90% or better, B = 80 – 89 %, C = 70 – 79 %, D = 60 – 69 %, F = less than 60%.

Technology Use Policy:

Using technology, when appropriate, is encouraged. We will be using TI 84, Ti N-Spire Calculators and Mathematica in some topics. You **cannot** use the TI-89 Calculator or any other calculator, which performs symbolic operations.

Homework Policy:

Homework will be into two parts, one that is for practice that student doesn't need to turn in and another part that is to be handed in at the beginning of the class on the due date. Homework should be written in appropriate way and all work must be shown in details. The assigned homework problems are the minimum number of problems required to attain some level of mastery of the material and you should work more problems to achieve full mastery of the material. You should do all homework problems but only selected problems from each homework will be graded. Please be as neat as possible on the homework and try to keep the problems in order with space between them. Your homework should have your name and date clearly marked in the top right corner of the outside page (if there is more than one sheet of paper, please staple the sheets). Late homework will **NOT** be accepted.

Quizzes policy:

There will be 11 quizzes throughout the course. At the end of the semester, each student's best 7 quizzes will be added to get a 140 possible-point total. The quizzes will be given in the first 15 minutes of the class. There will be no make-ups for missed quizzes for any reason. The material that will be covered in the quizzes will be announced a head of time.

Exams Policy:

Exams should be taken as scheduled in the class time. All exams are closed book exams. No makeup examinations will be allowed except for documented emergencies (See Student Handbook). The material that will be covered in the exams will be announced in class and the final exam will be comprehensive.

Make-up exam policy:

All requests for make-up exams **MUST** be submitted to the instructor in writing, with the supported documents. It is imperative that you contact your instructor as soon as possible (do **NOT** wait until you return to class!) and include a way that you can be reached.

General Policies & Procedures:

- The first and most fundamental expectation I have for everyone in the class is to respect one another. Among other things, this means that only one person speaks at a time, **no one uses cell phones in class**, no one works on anything not related to our class, and everyone will put forth an honest effort.
- It is the student's responsibility to stay abreast of all class announcements and changes made to this syllabus in class, whether present or not.
- You are expected to review all graded quizzes and exam papers as soon as they are returned. All questions about the grading of quizzes, homework or exam papers must be reported within seven calendar days of the date on which the paper was returned.
- You are fully responsible for the material covered in class either from the text or not.
- Do the homework and extra problems steadily every day rather than once a week. Do not fall behind. To catch up, if class is missed, contact the instructor by e-mail.
- This class will be very active and I expect you to participate as much as possible. Don't be afraid to make mistakes or ask questions, the more you get involved, the better you'll do!
- This course requires you to learn a fair amount of new mathematical vocabulary. Understanding the vocabulary is essential for you to read questions correctly and express your thoughts, ideas and answers using the proper terminology.
- To do well in this course attend class every meeting on time, be prepared to work for the full class time, be organized, bring all necessary materials to class and follow teacher directions.
- If you need help, please ask for it. My door will always be open and you may feel free to e-mail me if you have questions outside of school time.
- Don't stress out about math! You have the abilities to do very well as long as you work hard.

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, Suite 115 or call Laura Smith at 972-780-3632.

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. Coming to class late or leaving *it* early is considered an absence. 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. Attendance and participation include attending class, participating in the discussion during the class and doing any individual or group work in the class.

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.

Important dates:

Quiz 1	Jan. 26
Quiz 2	Feb
Quiz 3	Feb. 3
Quiz 4	Feb. 10
Hw 1 due	Feb 15
First hour exam	Feb. 17
Quiz 5	Feb 24
Last day to withdraw with an automatic W	Feb. 25
Quiz 6	March 3
Quiz 7	March 10
Hw 2 due	March 22
Second Hour exam	March 24
Last day to drop with W or WF	March 29
Quiz 8	March 31
Quiz 9	April 7
Quiz 10	April 14
Hw 3 due	April 19
Third hour exam	April 21
Quiz 11	April 28
Final exam	May 10, 2011 at 5:00 pm