University of North Texas at Dallas
SYLLABUS

MATH 2000	(Discrete Mathematics) (3Hrs)	Spring 2015

Department of	Mathematics and Information Sciences	**School of**	Liberal Arts and Life Sciences

Instructor Name:	Dr. Ali Shaqlaih
Office Location:	DAL- 2-227
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Office Hours:	MTWR: 8:30-9:50 am, MW: 11:30AM-12:50PM
Classroom TIME & Location:	MW: 1:00-2:20PM in FH242
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
Required Text:	• *Discrete Mathematics*, 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:	• Discrete Mathematics and its Applications by Keneth Rosen, 6th edition, McGraw Hill, ISBN: 978-0-07-288008-3 • Discrete Mathematics and Combinatorial Mathematics, 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@fheg.follett.com

Course Goals

The goal of this course is to:
- 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:

- **Course Objectives:**
  At the end of this course, the student will be able to:
- 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:
- 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.

TOPICS	TIMELINE
Speaking Mathematically	Month of January
Logic, Methods of Proofs, Math. Induction	Month of February
Set Theory, elementary number theory	Month of March
Functions & Relations, elementary graph theory	Month of April

Grading Matrix:

Instrument	Value	Total
Homework Assignments	2 HW at 25 points each	50
Quizzes	6 quizzes at 25 points each	150
Hour Exams	2 exams at 200 points each	400
Projects and Group work	Different assignments	50
Attendance & Participation	Participation	50
Final Exam	One comprehensive exam	300
Total:		1000

The following standard grading scale will be used to determine your final letter grade:
$100\% \geq A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F \geq 0$.

Homework Policy:
Homework will be into two parts, recommended part, that is for practice and the 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. You should view the assigned homework problems as the minimum number of problems required to attain some level of mastery of the material. I

deem it acceptable for students to work in groups as they make their preliminary efforts to explore and work through homework problems. However, after any such preliminary and cooperative efforts, I expect each student to write up his/her final homework papers individually and without outside assistance. The act of copying another student's homework, or writing a problem solution as dictated by a tutor or from a solution manual, constitutes academic misconduct. You should do all homework problems but only selected problems will be graded. Be as neat as possible on the homework and try to keep the problems in order with space between them. Late homework will **NOT** be accepted.

In-class Quizzes (in class)

- In-class quizzes will be generally during the first 15 minutes of the class. Be on time so you will not get all the time for the quiz. The dates for the quizzes are pointed on the schedule below.
- There will be 10 in-class quizzes throughout the course. At the end of the semester, each student's best 6 quizzes will be added to get a 150 possible-point total.
- There will be no make-ups for any missed in-class quizzes **for any reason**. Instead, at the end of the semester only the best 6 in-class quizzes will be considered. You have 4 quizzes to miss so do not ask for make ups.
- The material that will be covered in the quizzes will be announced a head of time.

In Class Exams (in class)

- There will be two Mid-term Exams. The date for each exam is pointed in the schedule below.
- The final exam will be comprehensive. Students must take the final exam at the prescribed time; no exceptions. Make necessary arrangements now to attend the final exam.
- The student's grade is determined solely by his/her performance on the evaluation criteria and the grade assignments listed above. ***Do not expect Extra Credit assignments!***

Email Policy:
Use your Blackboard email account to contact me. You should check your email account on the Blackboard every day. You are responsible for any information that I send out via email. Due to privacy rights, I will not discuss grades over the phone. I will only answer emails from your Blackboard account.

Make-up exam policy:
Exams should be taken as scheduled in the class time. No makeup examinations will be allowed except for documented emergencies (See Student Handbook). 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!).

General Policies:
- 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 works on anything not related to the class (no cell use, no texting, no reading, no sleeping, …) 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.

- Leaving and entering the class back is generally **<u>not allowed</u>**. You can leave the class if you are not returning or for real emergency case. Leaving the class should be by the permission of the instructor.
- You are expected to review all graded quizzes, homework 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 will **NOT** get better than a grade of C if you miss **<u>more than 5 classes</u>**. Missing more than 5 classes may result in being dropped from the course with a WF.
- To do well in this course, attend class every meeting on time, be prepared to work for the full class time, bring all necessary materials to class, participate as much as possible, do the homework and extra problems steadily every day rather than once a week. Don't be afraid to make mistakes or ask questions, the more you get involved, the better you'll do!
- **My door will always be open and you should feel free to e-mail me if you have questions**. 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.

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. **More than 5 classes of absence may result in being dropped from the course with a WF. A student may NOT get better than a grade of C if he/she missed more than 5 classes.**

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of Academic Integrity 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 Academic Integrity at http://www.unt.edu/unt-

for complete provisions of this code.

In addition, all academic work submitted for this class, including exams, papers, and written assignments should include the following statement:

On my honor, I have not given, nor received, nor witnessed any unauthorized assistance that violates the UNTD Academic Integrity Policy.

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.

Copyright Policy:

The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this course, which include but are not limited to syllabi, lecture notes, quizzes, exams, in-class materials, review sheets, projects, and problems sets. Because these materials are copyrighted, you do not have the right to copy and distribute the handouts, unless I expressly grant permission.

Classroom Etiquette:

Appropriate behavior is expected of all students taking this course.

- Arrive to class promptly and do not leave until the scheduled ending time of the class.
- If you must arrive late or leave early, please do so as discreetly as possible and take a seat near the door.
- Turn off all non-medical electronic devices such as pagers, cell phones, laptops, etc. Take off the headphones.
- Do not read newspaper or work on unrelated assignments during class.

Grade Assignment:

o The student course grade is assigned according to the evaluation criteria and grading assignment stated on this syllabus.

o The grade is completely objective and is determined solely by student performance on each of the evaluation criteria (in-term exams, in-class quizzes, on-line quizzes, and the final exam).

o **Do not expect extra credit work or bonus grade assignments.**

Student Behavior:

o Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT.

o Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Student Life Center to consider whether the student's conduct violated the Code of Student Conduct.

The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at

Recommended Homework:

All "multiples of 3" problems in the covered sections and any other problems given in class.

Important dates:

Quiz 1	Jan. 28
Quiz 2	Feb. 4
Quiz 3	Feb. 11
Quiz 4	Feb. 18
First Hour Exam	Feb. 25
Last day to withdraw with an automatic W	March 2nd
Quiz 5	March 4
Quiz 6	March 11
Quiz 7	March 25
Quiz 8	April 1
Last day to withdraw with W or WF	April 7
Second Hour exam	April 8
Quiz 9	April 16
Quiz 10	April 23
Project Presentations	April 29th
Final exam	May 13, 2015 at 1:00 pm