***Course Syllabus CS 2305***

**Special Message**: Check here for changes in this course syllabus.

**Last Updated:** 01/09/2018

**Course Information**

Spring, 2018

Discrete Mathematics I

CS 2305.002 - TR 2:30pm - 3:45pm in ECSS 2.412

CS 2305.501 TR from 05:30pm - 06:45pm in ECSS 2.415

**Professor Contact Information**

Prof. Timothy P Farage

See my UTD homepage at [www.utdallas.edu/~tfarage](http://www.utdallas.edu/%7Etfarage) for office hours, etc. 

**Grader Contact Information**

Grader for CS 2305.002

TBA

Grader for CS 2305.501

TBA

**Computer Science Mentoring Center:** [Computer Science/Discrete Math Mentoring Center Hours](http://cs.utdallas.edu/education/undergraduate/tutoring/the-computer-science-mentor-center/)

**Course Pre-requisites, Co-requisites, and/or Other Restrictions**

Co-requisite: Calculus I

**Course Description**

Principles of counting. Logic and proof methods, including induction. Basic recurrence relations. Basics of algorithm complexity. Sets, relations, functions. Elementary number theory.

**Student Learning Objectives/Outcomes**

1. Ability to use and apply basic definitions and properties of logic
2. Ability to recognize and construct valid proofs including proofs by induction
3. Ability to understand what an algorithm is, use algorithms, use Big-O notation and algorithmic complexity
4. Ability to use basic counting techniques
5. Ability to use and apply basic definitions and properties of sets, relations, functions

**Required Textbooks and Materials**

We'll be using Rosen’s Discrete Mathematics and Its Applications 7th Edition.

**Assignments & Academic Calendar**

Assignments are from Rosen’s 7th edition:

Assignments will not be graded.  They are given so you can learn the material and practice for the tests.

|  |
| --- |
| Assignment 1.1: 1, 3, 5, 7, 9, 13, 23, 27 (Propositional Logic) |
| Assignment 1.3: 5, 7, 15, 17, 46, 47 (Propositional Equivalences) |
| Assignment 1.4: 1, 5, 7a, b, d,  9, 13, 15, 25, 27, 35 (Predicates and Quantifiers) |
| Assignment 1.5: 1, 3, 5, 7, 9, 17, 27 (Nested Quantifiers) |
| Assignment 1.7: 1, 3, 5, 7, 9, 11, 18b (Introduction to Proofs) |
| Assignment 2.1: 1, 5a,b, 9a-c, 13, 17, 19a,b, 21, 23 (Sets) |
| Assignment 2.2: 1, 3, 4, 25, 29 (Set Operations) |
| Assignment 2.3: 1a,b, 3a,b, 5a, 9a-d, 12, 13, 23 (Functions) |
| Assignment 2.5: 1 - 4 (Cardinality of Sets) |
| Assignment 3.2: 1a-d, 2a-e, 7a,b, 8a,b, 15 (The Growth of Functions) |
| Assignment 4.1: 1, 9a,c,d, 21a,c, 28a,b (Divisibility and Modular Arithmetic) |
| Assignment 4.2: 1, 3, 7, 9, 10, 11, 25, 26, 27, 28 (Integer Representation and Modular Exponentiation) |
| Assignment 4.3: 1, 3a-c, 14, 15 (Primes and Greatest Common Divisors) |
| Assignment 4.4: 1, 3, 4, 31, 32 (Solving Congruences) |
| Assignment 4.5: 5, 7 (Pseudorandom Numbers) |
| Assignment 4.6: 1, 3, 5, 25, 27 (Cryptography) |
| Assignment 5.1: 3, 4, 5, 7, 15 (Math Induction) |
| Assignment 6.1: 1, 3, 7, 9, 11, 13, 15, 17, 27, 29, 33, 47 (Counting) |
| Assignment 6.3: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 27, 31 (Permutations and Combinations) |

*Note: Only pencils and blank paper are allowed during tests. No electronic devices of any kind are allowed.* Test dates are subject to change.

**Test Dates**

**Tuesday/Thursday Sections:**

Test 1 - Thursday, February 15

Test 2 - Thursday, March 22

Test 3 – Tuesday, April 24 - This is also the last day of class

All tests are weighted equally. Each test will contain an extra credit problem. No other extra credit will be given.

**Grading Policy**

The tests will determine your grade.

Letter grades will be assigned as given below. I reserve the right to make the grading scale easier than given here.

            98-100                         A+

            92-97                           A

            90-91                           A-

            88-89                           B+

            82-87                           B

            80-81                           B-

            78-79                           C+

            72-77                           C

            70-71                           C-

            68-69                           D+

            62-67                           D

            60-61                           D-

            Below 60                     F

Your grade will be based only on your scores as described above. PLEASE do not ask me to change your score/grade or give you a score/grade for any other reason. I know that some of you will lose scholarships, be deported, etc. if you do not make a certain score/grade; there is nothing I can do about this. Of course, if a mistake was made in scoring, I will correct it. Any requests for changes to scores must be made within 30 days after the day the graded material was returned to the class. Any request for a grade change must be made within 60 days after the day that grades were posted.

**Attendance Policy**

Make sure you read this.

[**http://cs.utdallas.edu/education/un­dergraduate/attendance-policy/**](http://cs.utdallas.edu/education/un%1fdergraduate/attendance-policy/)

**Course & Instructor Policies**

All make-up exams are scheduled and given at the discretion of the instructor. Make-up exams are only given to those students who coordinate the missing of an exam prior to the originally scheduled exam date and time, or for an emergency.

Class attendance is recorded. There is a strong, direct correlation between class attendance and class performance. Those students who regularly attend class tend to make significantly higher final grades than those who don’t.

Students are expected to be respectful to each other and to the course instructor. Disruptive behavior in the class room is not tolerated.

Each student in the class is encouraged to join/form a study group. Members of each study group are strongly encouraged to assist one another in learning and understanding the course material.

**UT Dallas Syllabus Policies and Procedures**

For general UTD policies go to the link: <http://provost.utdallas.edu/syllabus-policies/>

***These descriptions and timelines are subject to change at the discretion of the Professor.***