

COT 3100: Applications of Discrete Structures

SYLLABUS

"Mathematics consists of proving the most obvious thing in the least obvious way."
George Polya

BASIC INFO

- **Semester:** Spring 2007
- **Schedule:** 11:45-12:35 MWF
- **Location:** CSE E107
- **Professor:** Alper Üngör
CSE430 (ungor@cise.ufl.edu)
- **Teaching Assistants:**
Hale Erten CSE309 (herten@cise.ufl.edu)
Ajit Rajwade CSE309 (avr@cise.ufl.edu)
Jyungryun Seo CSE309 (jseo@cise.ufl.edu)
Brian Weinrich CSE309 (brianew@cise.ufl.edu)
- **Catalog numbers:** 1088, 3751, 3761, 4617
- **Web-page:** <http://www.cise.ufl.edu/class/cot3100sp07/>
- **Prerequisites:** MAC 2311, MAC 2233, or MAC 3472

• **Lectures:**

	Mon	Tue	Wed	Thu	Fri
11:45	Lecture TURL005		Lecture TURL005		Lecture TURL005
12:50				DS3761 TUR2305	
13:55				DS3751 AND0019	
15:00			DS4617 TUR2305		
16:05			DS1088 TUR1315		

• **Office Hours:**

	Mon	Tue	Wed	Thu	Fri
9:00	Hale				Jyungryun
10:00	Hale				Jyungryun
13:00			Alper		
14:00			Alper		
15:00		Ajit		Brian	
16:00		Ajit		Brian	

*"Mathematics is the cheapest science. Unlike physics or chemistry,
it does not require any expensive equipment.
All one needs for mathematics is a pencil and paper."
George Polya*

MAIN THEME

This course covers the mathematics of discrete events, i.e. events that involve distinct elements, finite structures of distinct elements, or finite sampled versions of continuous phenomena (such as movement). Learning objectives include:

- *Mathematical Reasoning*: The ability to read, comprehend, and construct valid mathematical arguments (proofs). Mathematical induction will be stressed.
- *Combinatorial Analysis*: Methods of counting or enumerating objects.
- *Discrete Structures*: Abstract mathematical structures used to represent discrete objects and relationships between these objects. These structures include sets, relations, graphs, trees. All course activities are designed to serve these objectives.

*"I'm sorry to say that the subject I most disliked was mathematics. I have thought about it.
I think the reason was that mathematics leaves no room for argument.
If you made a mistake, that was all there was to it."
Malcolm X*

COURSEWORK AND GRADING

Grades will be based on homeworks (10%), in-class quizzes (20%), two mid-term exams (20% each), and a final exam (30%).

- *Homeworks*: There will be weekly HW assignments. Each HW is equally weighted and you can drop your lowest score. Half of each HW score will be based on the number of questions you solved, the other half will be based on a detailed evaluation of a random question on the HW. **Electronic submissions will not be accepted. Late submissions will not be accepted.**
- *Quizzes*: There will be a quiz almost every week. Each quiz is equally weighted, and you can drop your lowest two scores (this allows you to miss two quizzes if you have other commitments).
- *Exams*: The two mid-term exams will be in class. The final exam will be held during the official final exams week. The exams will be closed book.

The grading scale will be $A = [100,90]$, $B+ = (90,85]$, $B = (85,80]$, $C+ = (80,75]$, $C = (75,70]$, $D = (70,60]$ or more lenient if I decide to use a curve.

"Everything should be made as simple as possible, but not simpler."
"Do not worry about your difficulties in mathematics, I assure you that mine are greater."
Albert Einstein

COURSE MATERIAL

- **Required Textbook:**

1. *Discrete Mathematics and Its Applications. (6th ed).*, Kenneth H. Rosen, McGraw-Hill, 2006.

- **Other Recommended Resources:**

1. *Student solutions guide to Discrete Mathematics and Its Applications. (6th ed).* Kenneth H. Rosen, 2006.

2. *Discrete Mathematics and Its Applications. (5th ed).*, Kenneth H. Rosen, McGraw-Hill, 2003.

You can survive this class following the 5th or an earlier edition of the Rosen's textbook. However, the topic, and HW exercise references will be given based on the sixth edition. So, it is your responsibility to correctly locate the referred topics and exercises.

3. *How to solve it. (2nd ed).* G. Polya, Princeton University Press, 1957
4. See the class web-site for some links to useful lecture notes.

TENTATIVE LIST OF TOPICS

- Logic and Proofs (1.1–1.7)
- Sets, Functions, and Sequences (2.1–2.4)
- Algorithms and Integers (3.1–3.5)
- Induction and Recursion (4.1–4.3)
- Counting (5.1–5.3, 7.1, 7.3, 7.5)
- Relations (8.1, 8.3, 8.5)
- Graphs (9.1–9.8)
- Trees (10.1–10.4)

COURSE POLICIES

- *Regrading Policy:* You are free to ask me or one of the TAs why an answer did not get full credit. However, such verbal discussions will never result in extra points. Actual regrade requests must be made in writing, and then turned in to one of the TAs. Attach a separate page to your assignment/exam with the requested regrade and the reasons for the regrade. In no case may you write on the assignment/exam itself after it is graded. Requests must be made **within one week** of when we return the graded assignment/exam to class.
- *Make-up Policy:* There will be no make-up quizzes under any circumstances. Make-up exams for the midterms and the final will be given only if you have a written official documentation of a valid excuse and you contact me prior to the exam. If you cannot provide an official documentation do not even bother to ask me about a make-up exam.
- *Late Policy:* Late HW submissions will not be accepted under any circumstances. Unless you have an official documentation of a valid excuse covering the entire period of the assignment (HW out – HW due), please do not ask for an extension.
- *Attendance:* I do not keep track of the attendance, directly. I believe that you are old enough to decide what is best for you. It is your responsibility to stay abreast of the material presented in class as well as taking enough number of quizzes.
- *Distractions:* This is a large class and I expect you to be extra careful not to cause any distraction in the classroom. Absolutely no phone calls or text messaging during the class. Also please be on time to the lectures. If you are more than a couple of minutes late do not enter the classroom.
- *Announcements:* Students are responsible following the announcements on the course web-page (<http://www.cise.ufl.edu/class/cot3100sp07/>). Schedule updates regarding the homeworks, exams and office hours will appear there.
- *Accommodations for Students with Disabilities:* Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.
- *The University's Honesty Policy:* All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others.
The following links contain additional information relating to academic honesty:
 - <http://lss.at.ufl.edu/services/turnitin/resources.html>
 - <http://www.dso.ufl.edu/judicial>