Math 2310 - Discrete Mathematics

Instructor: Dr. Gabor Lippner

Time and place: MWR, 10:30-11:35, in 043 SL

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Office hours:
Wednesday 12-1, Thursday 1-3 Other times: By appointment

Textbook: Kenneth Rosen: Discrete Mathematics and Its Applications (7th ed)

Homework: Homework will be assigned daily, but will not be collected. To make sure that students are keeping up with the homework, there will be weekly quizzes during the semester. Most of the problems in the quizzes will be taken verbatim from any of the homework assignments up to that point, though the emphasis will be on homework assigned since the last quiz. It will, therefore, be incredibly important for students to do the assigned homework before the next class meeting. Thus, if you have a lot of questions on the homework, it will be essential for you to come to my office hours, make special appointments to see me, or go for tutoring in the Mathematics Department or in the College of Engineering.

Quizzes: there will be 10 short (max 20 minutes) quizzes during the semester, one on each Monday except the following days: Columbus Day, November 2, and November 30. There will not be a make-up possibility for quizzes, however the 2 worst scores will be dropped.

Midterm and Final Exam: There will be one midterm exam, and a final exam in this course. The midterm exam is 65-minute in-class exams; it will be on Thursday, October 29. The final exam date is to be determined. Check for exam schedule conflicts as soon as possible.

Grading: The grading will be based on weekly quizzes (30%), the midterm (30%), and the final exam (40%). The two lowest quizzes will be dropped. Homework will be regularly assigned and discussed in class. Although the homework is not counted in grading, the quizzes and tests will consist of similar problems (often the same problems!) so doing it is very essential.
Overall Average in %  Grade for Course
93-100   A
90-92    A-
87-89    B+
83-86    B
80-82    B-
77-79    C+
73-76    C
70-72    C-
67-69    D+
63-66    D
60-62    D-
0-59     F

Course Description: The course provides the discrete portion of the mathematical background needed by students in electrical and computer engineering. Here is an (approximate) list of topics we are planning to cover (the numbers refer to sections in Rosen's book):

1.1 Propositional logic
1.3 Propositional equivalences
1.4 Predicates and quantifiers
2.1 Sets
2.2 Set operations
2.3 Functions
2.4 Sequences and summations
2.5 Cardinalities of sets
5.1 Mathematical induction
5.2 Strong induction and well-ordering
5.3 Recursive definitions and structural induction
6.1 The basics of counting
6.3 Permutations and combinations
6.4 Binomial coefficients and identities
8.1 Applications of recurrence relations
8.2 Solving linear recurrence relations
8.5 Inclusion-exclusion
8.6 Applications of inclusion-exclusion
10.1 Graphs and graph models
10.2 Graph terminology and special types of graphs
10.3 Representing graphs and graph isomorphism
10.4 Connectivity
11.1 Introduction to trees
11.4 Spanning trees
If you have a concern about the course or the instructor that cannot be resolved by speaking with the instructor, please contact Professor D.King (Undergraduate Director), 447 LA, x5679, d.king@neu.edu.

**Academic Honesty:** The university views academic dishonesty as one of the most serious offenses that a student can commit while in college and imposes appropriate sanctions on violations. Cheating on a quiz or exam will not be tolerated.

It is University policy that no grade, including an incomplete, can be changed after one year. Exceptions must be authorized by the Academic Standing Committee.

All students are required to take the final exam at the scheduled time unless they have a final exam conflict that has been submitted to and approved by the Registrar, and your instructor has received notification of the conflict from the Registrar. If you have a final exam conflict, then you must submit a course conflict form available online through the Registrar's webpages. Do not make travel plans that interfere with your taking the final exam at the scheduled time. Go to: [http://www.registrar.neu.edu/finexsched.html](http://www.registrar.neu.edu/finexsched.html) to see the date of your final exam.

**Homework (tentative, please check often):**

Sep. 9: read Section 1.1 (pp.1-5); pp. 12-14, #2 (e,f), 3 (c,d), 9 (a,b,c,h), 11 (b,d), 21.
Sep. 10: read Section 1.3 (pp. 25-30); pp. 13-15, #11 (f), 27, 31; p. 35, #9, 15.
Sep. 14: read Section 1.4 (pp. 36-51); pp. 55-57, #1,3,5,7, 9,13,17,21,35,39,43,45
Sep. 16: read Sections 2.1, 2.2; pp. 125-126, #1, 6, 14, 28, 35; pp. 136-137, #1-3, 29, 52-54, #18, 19, 30, 55.
Sep. 17: read Section 2.3 up to page 145; pp. 152-153, #1, 3, 7, 10-13, 21, 23 (a-c).
**September 12: last day to elect pass/fail for Fall-2015 classes.**
Sep. 23: review Section 2.3 and the last two HW assignments; read Section 2.4 up to Example 9 on p. 159; pp. 167-168, #3, 7, 9, 12.
Sep. 24: read Section 2.4 (the part on Summations, pp. 162 - 166); p. 169, #29, 31, 35 - 39.
Sep. 28: read Section 2.5; pp. 176 - 177, #1, 5 - 9, 15, 17.
**September 29: Last day to drop a Fall class without a W grade**
Sep. 30: review Sections 2.4 - 2.5 and the last two HW assignments; p. 177, #22, 25, 27 - 29, 33 - 35.
Oct. 1: read Section 5.1 up to p. 319; pp. 329 - 330, #3-7, 10, 13.
Oct. 5: read Section 5.1, Examples 5, 6; p. 330, #15, 19, 21, 22.
Oct. 7: read the rest of Section 5.1; p. 330, #23, 25, 45.
Oct. 8: p. 330, #20, 22; read Section 5.3 up to Example 4 (inclusive); pp. 357 - 358, #1d), 3a), 12, 13, 15, 16.
Oct 12: Columbus Day. No classes.
Oct. 14: review Sections 5.1, 5.3; p. 330, #16, 24, 27; p. 358, #14.
Oct. 15: read Section 6.1; p. 396, #1, 7, 8, 11, 12, 16, 23.
Oct. 19: p. 397, #29, 33-35; read Section 6.3; p. 413, #2, 3, 5, 6, 13, 17.
Oct. 26: Review chapter 6
Oct. 28: Review before the midterm
Oct. 29: **Midterm**
Nov. 2: read Section 8.1 up to Example 4 inclusive; pp. 510-511, #7 - 9, 11 - 14.
Nov. 4: pp. 511-512, #24-27; read Section 8.2 (up to Example 5 inclusive); p. 524, #3(c,d,e), 4(a,b).
Nov. 5: pp. 524-525, #3(f), 4(c,d,e,f), 7, 8, 11.
Nov. 9: read Section 8.5; pp. 557-558, #1, 3, 5, 10, 11, 13, 17, 18.

**November 11. Veteran’s day. No classes.**

Nov. 12: read Section 8.6; pp. 564-565, #6, 8, 9, 13, 15, 25, 26.
Nov. 16: Review chapter 8
Nov. 18: read Sections 10.1, 10.2; p. 650, #13; pp. 665-666, #1, 5, 13, 23, 25, 26.
Nov. 23: read Section 10.3; pp. 675-678, #5, 9, 34-37, 39, 41, 57, 67.

**Happy Thanksgiving!**

Nov. 30: read Section 10.4; pp. 689-691, #1, 5, 6, 20-23, 31-34.
Dec. 2: pp. 755-756, #1, 11a), 12a), 13a), 17-19 (read relevant parts of Section 11.1).
Dec. 3: review Sections 10.2 - 10.4; pp. 738, #1-4.
Dec. 7 Review
Dec. 9: Review

*December 10: last day to drop a fall class with a W grade*

**Final exam: TBA**