
CSCE 235 – DISCRETE MATHEMATICS

Fall 2007

“Computer Science is no more about computers than astronomy is about telescopes.”
–Edsger Dijkstra

Course Info

Lectures: Time & Venue	MWF 1:30 – 2:20 Avery 109
Recitations: Time & Venue	Th 5:30 – 6:20 Avery 108
Prerequisites	CSCE 155 and Math 106. CSCE 156 recommended but not required.
Course Web Page	http://www.cse.unl.edu/~cse235
Textbook	<i>Discrete Mathematics and Its Applications</i> Kenneth H. Rosen, McGraw Hill, 6th Edition , 2007
Instructor	Berthe Y. Choueiry choueiry@cse.unl.edu 123B Avery Hall Office hours: M/W 2:30 – 3:30
TA	Chris Bourke cbourke@cse.unl.edu 123C Avery Hall Office hours: W 12:00 – 1:00 Avery 123C Th 12:00 – 1:00 Avery 13A Also by appointment

Course Description

Computer Science is not programming. Rather, Computer Science is the mathematical modeling and study of what computation is—that is, what problems have a computational solution and how *efficient* that solution can be. Thus, a strong foundation in mathematics is essential to your success as a computer scientist. At the heart of computer science are fundamental, discrete structures which we will study in this course. Specifically, you will learn many of the mathematical definitions, techniques, and ways of thinking that will be useful in Computer Science.

Tentative Schedule

Below is a list of topics I intend to cover along with the relevant sections of the text. This schedule is *tentative* and may be changed or topics added/removed as time dictates. Furthermore, though we will follow

the book, additional material may be introduced (with sufficient resources) while the depth of each topic may vary.

Topic	Sections
Propositional Logic	1.1 - 1.2
Predicate Logic	1.3 - 1.4
Proofs	1.5 - 1.6
Sets	2.1 - 2.2
Functions	2.3
Relations	8.1, 8.3 - 8.6
Algorithms	3.1 - 3.3
Number Theory	3.4 - 3.7
Induction	4.1 - 4.3
Counting	5.1 - 5.2
Combinatorics	5.3 - 5.5
Recursion	7.1 - 7.2
PIE	7.5
Graphs	9.1 - 9.5
Trees	10.1 - 10.3

I intend to teach from a combination of slides and board work. I will make handouts of the slides available, but you are ultimately responsible for the material, thus regular attendance is strongly encouraged. Furthermore, you will be expected to *read the relevant sections of the text book before coming to class*.

The instructor for the recitations is Chris Bourke, a graduate teaching assistant (GTA). Recitation meets every Tuesday from 5:30 to 6:20 in Avery 108. Recitation will primarily serve as a question/answer session and an opportunity for you to see more examples of concepts presented in lecture, therefore you should come prepared with any questions or examples that you wish to see worked out. Regular (though *not necessarily announced*) quizzes will also be given *during recitation*. Since make-up quizzes will not be given, attendance, while not mandatory, is *highly recommended*.

Grading

Grading will be based on homework, quizzes and two exams with the following contributions.

Homework	60%
Quizzes	15%
Midterm	10%
Final	15%

Homework: The GTA will assign about 6–7 homeworks, one about every other week. Homework may consist of selected exercises from the text as well as original problems and programming assignments. You will be expected to follow all instructions on the homework assignments. Clarity and legibility are of great importance. If homework is sloppy or unclear, points may be deducted. You are not *required* to typeset your homework assignments, however, it is *strongly* recommended that you do so using L^AT_EX or a similar typesetting system. Resources for L^AT_EX are available on the course web page. Programming portions (if assigned) of each assignment must be completed using C++ and must compile and run on CSE using the g++ compiler. Source code and all relevant files *must* be handed in using the CSE *web* handin program (<http://www.cse.unl.edu/~cse235/handin>).

Quizzes: There will be several pop quizzes (i.e. they may or may not be announced in advance) given during the recitation on Tuesdays. They will generally be short and will cover recent topics. *There will be no make-up quizzes.* In addition, there will be a required *pretest* that will count as 2 quizzes on Friday, August 13st during the lecture.

Exams: There will be one midterm exam and one final given in class (see the schedule for dates). These exams will be closed-book exams, but you have the option of using a single 8.5x11 sheet of hand-written notes (front and back). You will hand this in along with your exam. As of now, the final *will* be comprehensive.

Grading policy: If you have questions about grading or believe that points were deducted unfairly, you must first address the one who graded it (Chris) to see if it can be resolved. Such questions should be made within a reasonable amount of time after the graded assignment has been returned. No further consideration will be given to any assignment a week after it has been graded and returned to you. It is important to emphasize that the goal of grading is consistency. A grade on any given assignment, even if it is low for the entire class, should not matter that much. Rather, students who do comparable work should receive comparable grades (see the subsection on the scale used for this course).

Late work: All homeworks will be due at the beginning of class each Friday. You are allowed to turn in one and only one late assignment (without penalty) at the start of class the following Monday. No assignments will be accepted after this time. The web handin program that you will use enforces a *strict* handin time based on the CSE server's clock. Programs that are even a few minutes late will be marked as late so is *extremely* important that you handin your electronic files well within the time that they are due. In general, there will be no make-up exams or quizzes. Exceptions may be made in certain circumstances such as health or emergency, but you must make every effort to get prior permission.

Scale: Letter grades will be awarded based on the following scale. This scale may be adjusted upwards if the instructor deems it necessary based on the final grades only. No scale will be made for individual assignments.

A+	≥ 97	B+	≥ 87	C+	≥ 77	D+	≥ 67	F	< 60
A	≥ 93	B	≥ 83	C	≥ 73	D	≥ 63		
A-	≥ 90	B-	≥ 80	C-	≥ 70	D-	≥ 60		

Academic integrity: All homework assignments, programs, quizzes, and exams must be your own work. No collaboration with fellow students, past or current, is allowed. The Computer Science & Engineering department has an Academic Integrity Policy. All students enrolled in any computer science course are bound by this policy. You are expected to read, understand, and follow this policy. Violations will be dealt with on a case by case basis and may result in a failing assignment or a failing grade for the course itself. The most recent version of the Academic Integrity Policy can be found at http://www.cse.unl.edu/undergrads/academic_integrity.php.

Communication

The best way to communicate with the instructor and the GTA is through email to the address cse235@cse.unl.edu. Messages sent to this address will be received by both the instructor and the GTA, who will respond to the requests within regular business hours. Moreover, I may send out emails to the class using the account cse235-m1@cse.unl.edu. However, these emails will only be sent out to your CSE email accounts. Because spam filters may reject some emails, it is very important that you use your CSE email account for all communications (they will all be white-listed).

Another valuable communication tool is the course web page. Announcements and resources will periodically be made available. Also, there is an anonymous suggestion box that you may use to voice your concerns

about any problems in the course if you do not wish to be identified.

Finally, I will hold regular office hours on Monday and Wednesday from 2:30 to 3:30 p.m. The GTA's office hours are Wednesdays and Thursdays from 1:00 to 2:00. We will make ourselves available by appointment; please email us to set up one. Generally speaking, you should talk to Dr. Choueiry for questions about course material and lecture. You should talk to Chris about grading, homework, and recitation material.