CSCE 235 – Introduction to Discrete Structures
Spring 2010

"Computer Science is no more about computers than astronomy is about telescopes."

–Edsger Dijkstra

Course Info

Lectures: Time & Venue	MWF 12:30 – 1:20 Avery Hall 119
Recitations: Time & Venue	Mon 3:30 – 4:20 Avery Hall 110
Prerequisites	CSCE 155 and Math 106. CSCE 156 recommended but not required.
Course Web Page	`http://www.cse.unl.edu/~cse235`
Textbook	*Discrete Mathematics and Its Applications* Kenneth H. Rosen, McGraw Hill, **6th Edition**, 2007
Instructor	Berthe Y. Choueiry `choueiry@cse.unl.edu` 123B Avery Hall during office hours, 360 Avery Hall otherwise Office hours: M/W 1:30 – 2:30
TA	Nobel Khandaker `knobel@cse.unl.edu` Office hours: Monday (updated)& Thursday 9:00 – 10:00, Student Resource Center 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
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 textbook before coming to class.*

The instructor for the recitations is Nobel Khandaker, a graduate teaching assistant (GTA). Recitation meets every Monday from 3:30 to 4:20 in Avery 110. 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. There will be a quiz at almost every recitation.

Grading

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

Homework	30%
Quizzes	15%
Pretest	3%
Progress Assessment Test (PAT)	2%
First midterm	15%
Second midterm	15%
Final	20%

Homework: The GTA will assign about one homework per week. Homework may consist of selected exercises from the text as well as original problems and programming assignments. Please carefully follow the indications below:

- You will be expected to follow all instructions specified on each homework assignment.

- Clarity and legibility are of great importance. If homework is sloppy or unclear, points *will* be deducted.

- You are not *required* to typeset your homework assignments, however, it is *strongly* recommended that you do so using LATEX or a similar typesetting system. Bonus points are give for typesetting homework in LATEX only, but in no other word-processing program. Resources for LATEX are available on the course web page. If you typeset your homework, you must submit the PDF file by webhandin.

- Two students can work together and submit a single homework under the condition that they typeset their homework in LaTeX.

- Programming portions (when assigned) of each homework must be completed using `C++` or `Java`, and must compile and run on `cse.unl.edu`. Code that does not compile or run on `cse.unl.edu` will be ignored and considered as incorrect.

- Source code and all relevant files *must* be handed in using the CSE *web* handin program (`http://www.cse.unl.edu/handin`).

Quizzes: There will be almost weekly quizzes (i.e. they may or may not be announced in advance) given during the recitation on Mondays. They will generally be short and will cover recent topics. In general, *there will be no make-up quizzes*. Exceptions may be made in certain circumstances such as health or emergency, but you must make every effort to get prior permission.

Pretest: There will be a required *pretest* on Friday, January 15th during the lecture. The pretest will count for 3% of the final grade. In general, *there will be no make-up pretest*. Exceptions may be made in certain circumstances such as health or emergency, but you must make every effort to get prior permission.

Progress Assessment Test (PAT): As part of CSE's assessment of its academic programs, every student in this course must take a Progress Assessment Test (PAT) at the end of the semester. Some time between Wednesday of the fourteenth (14th) week of classes 04/21/2010 and Wednesday of the fifteenth (15th) week of classes 04/28/2010, you will need to go to the Arts & Sciences Testing Center in 127 Burnett Hall to take a proctored exam in Blackboard of 30-40 multiple choice questions based on content of this course. This exam will count towards 2% of your final grade.

Exams: There will be two midterm exams and one final exam given in class (see the schedule for dates). Exams are not comprehensive. 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 in your cheat sheet along with your exam. In general, *there will be no make-up exams.* Exceptions may be made in certain circumstances such as health or emergency, but you must make every effort to get prior permission.

Grading policy: If you have questions about grading or believe that points were deducted unfairly, you must first contact the GTA (Nobel) to see if the problem 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 one 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: Please make note of the following policies:

- All homework are due at the beginning of each class on Monday unless specified otherwise.

- You are allowed to turn in two and only two late assignments (without penalty) twenty four hour (24 hours) after the homework was due. 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 or homework 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.

- All parts of a homework must be handed by the deadline.

- When giving your paper copy, make sure it is given by hand to the GTA or the instructor. If they are not available, you can give it the CSE Office Staff, explicitly asking that they put a time stamp when

they receive it from you. Copies that are not time stamped by CSE Staff will be considered as handed in whenever the GTA or the instructor physically receives them.

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 unless specified otherwise. 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://cse.unl.edu/ugrad/resources/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-ml@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 1:30 to 2:30 p.m. in my office. The GTA's office hours are Tuesdays and Thursdays from 9:00 to 10:00 a.m. in the Student Resource Center. 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 Mr. Khandaker about grading, homework, and recitation material.

Special Needs

Students with special needs should contant the instructor as soon as possible.