CSCE 235 – Discrete Mathematics

Spring 2018

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

Course Info

Prerequisites	CSCE 155* or SOFT 160 and MATH 106 or equivalent				
Instructor	Dr. Chris Bourke				
	<u>cbourke@cse.unl.edu</u>				
	Avery Hall 363				
Office Hours	See Course Page				
Textbook	Discrete Mathematics and Its Applications				
(suggested)	Kenneth H. Rosen, McGraw Hill				
Recitation	See Course Page				
Teaching Assistants	See Course Page				

Course Description

Computer Science is the mathematical modeling and study of computation. In Computer Science, we study the inherent complexity of problems and the efficiency of algorithmic solutions. In order to do so, a strong foundation in mathematics is essential. Fundamental to Computer Science are discrete structures, logic, proofs, and other topics that we'll explore in this course. You will learn many of the mathematical definitions, techniques, and ways of thinking that will be useful in Computer Science.

Tentative Schedule of Topics

A complete schedule of topics as well as the associated required reading is available on the course webpage. The topic outline is roughly as follows.

- Propositional Logic, Predicate Logic
- Proofs
- Sets
- Functions
- Relations
- Algorithms & Algorithm Analysis
- Induction
- Recurrence Relations
- Combinatorics
- Graphs & Trees

Teaching Style

For this course, I will teach from a combination of board work and overhead (handwritten) notes. Scans will be provided after each major lecture, but ultimately *you* are responsible for the material. Regular attendance and note taking is strongly encouraged. Furthermore, you will be expected to read the relevant sections of the text book before coming to class. 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 in recitation. Since make-up quizzes will not be given, attendance is required.

The various texts offer good examples of the materials and numerous opportunities to work out examples. Homework, exams, and quizzes are used to assess your progress in this course and should be considered the *minimal* amount of work required to learn the material. You should practice additional examples and exercises from the texts in order to **master** the material.

Accommodations for Students with Disabilities

It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodations to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Grading

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

Category	Weight			
Homework	70%			
Quizzes	10%			
Midterm	10%			
Final	10%			

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
А	>= 93	В	>=83	С	>= 73	D	>= 63		
A-	>= 90	B-	>= 80	C-	>= 70	D-	>= 60		

Assignments

There will be 6-8 homework assignments, about one every other week. Assignments will 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 type-set your homework assignments; however, it is strongly recommended that you do so using LaTeX or a similar typesetting system. Resources for LaTeX are available on the course web page. Source code and all relevant files for programming portions must be handed in using the CSE web handin program and checked using the webgrader when relevant. Each assignment will have a fixed deadline (beginning of class) based on CSE's server time.

Quizzes

There will be several pop quizzes (i.e. they may or may not be announced in advance) given during the recitation. They will generally be short and will cover recent topics.

Exams

There will be one midterm exam (in class) and one final exam. These will be open notes/book tests and may 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 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 Policy

Homework assignments have a strict *in-class* (at the beginning) due date. 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 seconds past the due date/time will be considered late.

It is understandable that unforeseen events may interfere with your ability to handin all homework assignments on time. As such, I've adopted a policy of allowing *one* late homework. You may turn in a single assignment up to a week late. Any submissions after a week will not be considered. Any late submissions after using your one ``free pass'' will not be considered.

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. Documentation may also be required.

Dead Week Policy

In conformance with UNL's 15th Week Policy (see Registration and Records main webpage, <u>http://www.unl.edu/regrec/</u>), be aware that the final homework may be due during the final week of classes. Further, there will be a regularly scheduled lab during the final week of classes. Finally, all assignments, homework, labs or otherwise, will have a strict final due date during the final week of classes. This supersedes any unused late or screw-up passes that you may have (that is, such passes cannot be used to extend the due date of any assignment past the last week of classes).

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 otherwise permitted on specific assignments or problems. 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/academic-integrity-policy.

Communication

The main communication tool for this course is Piazza. We have established a Piazza group for this course and you should have received an invitation to it (if you have not, contact the instructor immediately). With Piazza you can ask questions anonymously, remain anonymous to your classmates, or choose to be identified. That way, the entire class benefits from the instructor or TA's response. In addition, you and other students can also answer each other's questions.

The department also maintains an anonymous suggestion/contact box available here:

https://cse.unl.edu/anonymous-department-feedback-form

Finally, I and the TAs hold regular office hours and are available by appointment.

Help

Your success in this course is ultimately your responsibility. That said, there several outlets for you to seek help and assistance.

- 1. Your Instructor Attend lecture regularly and engage in class discussions, ask questions in class, visit me during my office hours, etc.
- 2. Your TAs TAs hold regular weekly office hours, visit with them and ask questions, ask for examples, etc.
- Student Resource Center Though they may not be your direct TA, all Graduate Teaching Assistants (and some advanced undergraduates) hold regular office hours in the Student Resource Center (<u>http://cse.unl.edu/src</u>) open Monday thru Friday 9AM to 7PM and should be staffed most hours. Ask for help from anyone in the SRC.
- 4. Course materials start on assignments early, attend lectures and labs, work extra problems from the book, read all required (and optional!) materials.
- 5. Your colleagues Chances are, if you are having problems, your classmates are having them too. Discussion and dialog among students is encouraged (within the parameters set by CSE's academic integrity policy, this course's policy, and policies set for individual assignments).