

Discrete Mathematics for Computer Science

CS 3653
NH 246
4:30-7:10 p.m. Thursday
Fall 2019

Dr. Douglas R. Heisterkamp
NH 321
918-200-9377
doug@cs.okstate.edu

Course Catalog Description: Prerequisite: MATH 2144 with a grade of “C” or better. Theory and applications of discrete mathematical models fundamental to analysis of problems in computer science. Set theory, formal logic and proof techniques, relations and functions, combinatorics and probability, undirected and directed graphs, Boolean algebra, switching logic.

Primary Texts (require): *Mathematics for Computer Science* by Eric Lehman, F Thomson Leighton, and Albert R Meyer; 2018. Available online at <https://courses.csail.mit.edu/6.042/spring18/mcs.pdf>. The course will use the version with revision date of 2018/6/6, which will be posted to the course canvas page.

Office Hours: Monday, 2:30-3:30 p.m., in Stillwater or Tulsa.
(depending on CS 4793 lecture location).
Wednesday, 2:30-3:30 p.m., in Stillwater.
Thursday, 2:30-3:30 p.m., in Tulsa.
Other times available by appointment.

TA: TBA

Grading:	Assigned work	25%	Grading Scale:	for score x in	
	Exam 1	25%		$90\% \leq x$	A
	Exam 2	25%		$80\% \leq x < 90\%$	B
	Final Exam	25%		$70\% \leq x < 80\%$	C
				$60\% \leq x < 70\%$	D
				$x < 60\%$	F

Examinations: During an examination period, no communication of any kind about the exam (except with the instructor or proctor) is allowed.

Assigned work: Programs may be written in any language as long as the TA and the professor are able to build and execute from source code. Examples for class will be in C++ or Python. If in doubt, contact the instructor before the due date to verify that the programming environment is acceptable. If assignments are turned in late, they lose a percentage of their graded point values according to the following schedule:

Written and Programming Exercises

On time	:	0%
One week	:	25%
More than one week	:	100%

Assignments will be due at 11:59 p.m. on Fridays. Assignments may be turned in using the dropbox on canvas. Please use a high resolution black and white scan for hand written exercises. Written exercises may also be turned in during class or to my mailbox in 307 North Hall during business hours. If you have not used the departmental server, csx.cs.okstate.edu, in your previous courses, see users names and passwords section of <http://www.cs.okstate.edu/loggingon.html>.

Collaboration: Discussion of concepts, ideas, and techniques is allowed. After discussion, each student must write up his/her own solution. Copying another person's work, in part or whole, is not allowed. Giving another student your work, in part or whole, is considered cheating as well. If you are unsure whether your collaboration is acceptable, speak with the instructor in advance. Any violation of academic integrity would result in a undroppable grade of zero for that assignment and an additional reduction of one letter grade in the course and a report to the university administration. Major violations will result in a grade of F!

Disabilities act: If any student feels that he/she has a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and the Office of Disabled Student Services to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise the instructor of such disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

Syllabus Attachment: See <http://academicaffairs.okstate.edu/sites/default/files/documents/Fall%202019%20Syllabus%20Attachment.pdf> for Stillwater's syllabus attachment. Both Stillwater and Tulsa's syllabus attachments will also be uploaded to canvas.

Tentative Schedule

Date	Textbook	Topics
8/22	Chap. 1	Course Introduction
8/29	Chap. 1-2	What is a Proof
9/5	Chap. 3	Logical Formulas
9/12	Chap. 3, 4.1	Logical Formulas, cont.; Sets
9/19	Chap. 4.2-4.4	Relations and Functions
9/26	Chap. 4.5	Finitie Cardinality; exam review
10/3	—	Exam I
9/10	Chap. 5	Induction
10/17	Chap. 6	Induction; State Machines
10/24	Chap. 7	Induction; Recursive Data Types
10/31	Chap. 10	Directed Graphs
11/7	—	Exam II
11/14	Chap. 12	Simple Graphs
11/21	Chap. 17	Probabilities
11/28	—	<i>Holiday</i>
12/5	Chap. 18	Conditional Probabilities
12/12	—	Final Exam , 6:00-7:50 p.m.