CSC217A/B Discrete Mathematics - Spring 2023

CSC217A/B Discrete Mathematics Spring 2023
Instructor: Dr. Ned Lecky
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Class: A: TR 15:30 – 16:45 / B: TR 14:00 – 15:15
Location: Yokum 205
Office Hours: W 13:00 – 16:00 or by request

Catalog Description

Basic propositional and predicate logic. Concepts of sets, relations, and functions. Directed and undirected graphs and trees; traversals. Solving recurrences. Basic modular arithmetic. Counting and discrete probability (Bayes theorem, Bernoulli and binomial distributions, expectation). Hypothesis testing. Sampling and descriptive statistics (variance and standard deviation).

Textbook

Discrete Mathematics with Applications 5th Edition
by Susanna S. Epp
ISBN: 978-1-337-69419-3 Hardcover, Kindle
ISBN: 978-0-357-11408-7 Loose-leaf

Available from several online sources. The Cenage website also provides free additional materials for students.

Objectives

1. To develop reasoning skills.
2. To introduce to the language of logic, sets and graphs, that is commonly used in broadly understood computer science.
3. To provide probability concepts and statistical tools applicable in broadly understood computer science.

Your Responsibilities

Reading Assignments
Listed for each class in the schedule table below.

Homework
Assigned with each lecture but not graded. Solutions will be posted online. Most learning comes from solving problems.

Quizzes
There will be a short in-class quiz at the end of class most Tuesdays as announced in class. Quizzes will be collected and graded. The quiz will cover the material from the previous week.

Exams
There will be two in-class exams and a final exam.

Grading

Grades will be computed as follows:

Quizzes 15%	Quizzes most Tuesdays as announced in class. Lowest quiz will be dropped.
Exam 1 25%	In class: Chapters 1-2
Exam 2 25%	In class: Chapters 5, 8
Final Exam 35%	Part 1: Chapters 9-10 Part 2: Comprehensive Date scheduled by the university.

Final grades will be converted to letters as follows:

Average	Letter
93 – 100	A
90 – 92.99	A-
87 – 89.99	B+
83 – 86.99	B
80 – 82.99	B-
77 – 79.99	C+
73 – 76.99	C
70 – 72.99	C-
67 – 69.99	D+
60 – 66.99	D
< 60	E

Academic Integrity

Always give credit to your sources. If you have any doubts ask the instructor before you submit your work, it is too late after it has been submitted. Each instance of academic dishonesty will result in both a zero for the assignment and a full letter grade reduction in the course grade.

It is expected that all students enrolled in this class will support the letter and the spirit of the Academic Honesty Policy as stated in the college catalog.

Accommodations

It is the policy of the College that any student requiring accommodations of any kind to fully access this course must be registered for accommodations with the Student Support Services office located in the Angell College Center.

If you need any accommodation for this course, please contact Student Support Services at (518) 564-2810.

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Daily Schedule

The class schedule is as follows. Adjustments are likely and will be announced in class and on Moodle. Quizzes will be held most Tuesdays as announced in class.

Week	Class	Date	Topic
1	1	T 1/31	1.1, 1.2: Variables and The Language of Sets
	2	R 2/2	1.3: The Language of Relations and Functions
2	3	T 2/7	1.4: The Language of Graphs, 2.1 Logical Form and Equivalence
	4	R 2/9	2.2: Conditional Statements
3	5	T 2/14	2.3: Valid and Invalid Arguments
	6	R 2/16	2.4: Application: Digital Logic Circuits, I
4	7	T 2/21	2.4: Application: Digital Logic Circuits, I
	8	R 2/23	2.5: Number Systems and Circuits for Addition
5	9	T 2/28	3.1: Predicates and Quantified Statements I
	10	R 3/2	3.2: Predicates and Quantified Statements II
6	11	T 3/7	**EXAM 1: Chapters 1,2**
	12	R 3/9	3.3: Statements with Multiple Quantifiers
7	BREAK	T 3/14	NO CLASS
	BREAK	R 3/16	NO CLASS
8	13	T 3/21	3.4: Arguments with Quantified Statements
	14	R 3/23	5.1: Sequences I
9	15	T 3/28	5.1: Sequences II
	16	R 3/30	5.6: Defining Sequences Recursively
10	17	T 4/4	5.7: Solving Recurrence Relations by Iteration
	18	R 4/6	8.1: Relations on Sets
11	19	T 4/11	9.1: Introduction to Probability
	20	R 4/13	9.2: Possibility Trees and the Multiplication Rule
12	21	T 4/18	**EXAM 2: Chapters 3,5**
	22	R 4/20	9.5: Counting Subsets of a Set: Combinations
13	23	T 4/25	9.6: r-Combinations with Repetition Allowed
	24	R 4/27	9.7 Pascal's Formula and the Binomial Theorem
14	25	T 5/2	9.8: Probability Axioms and Expected Value
	26	R 5/4	9.9: Conditional Probability, Bayes' Theorem with Examples
15	27	T 5/9	10.1: Trails, Paths, and Circuits
	28	R 5/11	10.2 Matrix Representation of Graphs
Finals Week		TBD	**FINAL EXAM** **Part 1: Chapters 9-10** **Part 2: Comprehensive**