Grading Scheme

- 50% Homework Assignments
- 20% Midterm
- 30% Final Exam

There will be 10 homework assignments, each worth 5% of your final grade. They are due on Thursdays at 11:59pm EST. The due dates are posted on the Timetable page. Your name, student number, and all other required information (see Policy on Collaboration and Use of Other Resources) must appear on the first page of each assignment.

The midterm will be on Wednesday March 8 from 3:10pm to 5:00pm and is worth 20% of your final grade.

Each assignment must be typeset and submitted as a single PDF file on MarkUs

 Links to an external site.. Assignment number n must be named "CSC240an.pdf" and have the correct file extension. Only PDF files will be accepted. Scanned handwritten assignments, .jpg files, and .doc files will NOT be accepted. (If you write your assignment using Word, make sure you export it as a .pdf file and submit the resulting .pdf file. Do NOT simply change the extension on the file name from .doc to .pdf.) Proofread the PDF files you are submitting, to make sure that there weren't any special characters that have disappeared. It is your responsibility to ensure that your assignment has been submitted properly. Make sure to leave yourself sufficient time for uploading the assignment before the due date. The Student Guide to MarkUs

 Links to an external site. provides further documentation.

Assignments that are between 1 minute and 1 hour late will lose 10% of the total grade for the assignment.

Assignments that are more than 1 hour late, but at most 8 hours late will lose 25% of the total grade for the assignment.

Assignments that are more than 8 hours late will not be accepted.

The only exceptions must be for good reasons (such as illness) and must be approved by Professor Ellen at least 15 hours in advance.

The latest submitted version will be the one graded. If you submit an assignment very close to the deadline, you can leave a comment requesting that the last version submitted by the deadline be graded instead.

Questions concerning the grading of assignments and the midterm must be submitted **online via MarkUs** within one week of the date the item was graded.

There will be a quiz each week. It will be made available after lecture and must be submitted by 2:00pm on Friday. Quizzes must be submitted on MarkUs, as a single PDF file named "CSC240qn.pdf" where n is the quiz number. No late submissions will be accepted. The solution to each quiz will be discussed during tutorial. By 4:00pm on Monday, each student is required to do a peer review of the quiz done by a randomly assigned classmate. This involves giving it a rating:

- 3: perfect
- 2: only minor mistakes
- 1: at least one major mistake
- 0: not a reasonable attempt

If a rating of 2 is given, at least one mistake must be pointed out.
If a rating of 1 is given, at least one major mistake must be pointed out.

Quizzes will not be graded, but bonus marks will be given to students who submit reasonable attempts and do peer reviews, as follows:

- 5 bonus marks: all 11 quizzes and peer reviews completed
- 4 bonus marks: 9–10 quizzes and peer reviews completed
- 3 bonus marks: 7–8 quizzes and peer reviews completed
- 2 bonus marks: 5–6 quizzes and peer reviews completed
- 1 bonus mark: 2–4 quizzes and peer reviews completed

There will be a 3 hour in person final exam worth 30% of your final grade.
It will be scheduled during the final examination period.

Final grades may be adjusted up or down to conform with University of Toronto grading policies.

The syllabus is exactly the same as last year:

Predicate and propositional logic (pre-recorded lectures 1-4 and problem sessions 1-2)

Mathematics for Computer Science, chapters 1.1–1.2, 3
Learning to Reason, chapter 1
236/240 course notes, chapters 5, 6

propositional logic: negation, conjunction, disjunction, implication
truth tables
contrapositive, converse
predicate logic: universal quantification, existential quantification

O, Ω, Θ, o
disjunctive and conjunctive normal forms
prenex normal form
validity, satisfiablility

Proofs (pre-recorded lectures 5-6 and problem session 3)

Mathematics for Computer Science, chapters 1.3–1.9
How to Read and Do Proofs
Learning to Reason, chapter 2

substitution
modus ponens
specialization
direct proof
indirect proof
proof by contradiction
proof by cases
generalization
construction

instantiation
existence proofs

Induction

lectures 4-6
Mathematics for Computer Science, chapters 2, 5, 7
236/240 course notes, chapters 1, 4
How to Read and Do Proofs
Learning to Reason, chapter 2

(weak) induction
strong induction
inductive definitions
structural induction
well-ordering principle

Diagonalization and the Halting Problem

lecture 6
Mathematics for Computer Science, chapters 4.1, 8.1–8.2
Learning to Reason, chapter 3

countability
diagonalization
halting problem

Correctness and Analysis of Iterative and Recursive Algorithms

lectures 7-11
Mathematics for Computer Science, chapter 22
236/240 course notes chapters 2, 3
Introduction to Algorithms, chapters 2, 3, 4

worst case and average case time complexity of algorithms
upper bounds and lower bounds on time complexity of algorithms
worst case analysis of iterative algorithms
preconditions, postconditions
partial correctness, termination, total correctness,
loop invariants
correctness of iterative algorithms
correctness of recursive algorithms
divide and conquer algorithms
worst case analysis of recursive algorithms
solution of recurrences:
- guess and verify
- plug and chug
- divide and conquer recurrences
- Master theorem
- linear recurrences
- domain and range transformations

Languages and Automata Theory

lectures 11-13

An Introduction to Formal Languages and Automata, chapters 2-4
236/240 course notes, chapter 7

regular expressions
deterministic and nondeterministic finite automata
subset construction
closure results
proof of equivalence of finite automata and regular expressions
proving languages nonregular: pumping lemma
right linear grammars