CS 360 - Introduction to the Theory of Computing - Winter 2022

Instructor: Collin Roberts
Office Hours: Refer to `https://cs.uwaterloo.ca/~cd2rober/Teaching/CS360`.
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Course Website: All course information will be posted on the course websites.

- Material that should be available to students who are still deciding whether or not to enroll in the course will be posted to the unsecured website, `https://cs.uwaterloo.ca/~cd2rober/Teaching/CS360`.
- Material that must be restricted to students who are already enrolled in the course will be posted to LEARN, `http://learn.uwaterloo.ca/`.

Course Objective: To give a basic introduction to the theoretical foundations of computer science.

Syllabus: Models of computers including finite automata, pushdown automata and Turing machines. Basics of formal languages with applications to the syntax of programming languages. Alternate characterizations of language classes. Proving undecidability. Unsolvable problems and their relevance to the semantics of programming.

Textbook (recommended): *Introduction to Automata Theory, Languages, and Computation. 3rd Edition* by Hopcroft, Motwani and Ullman.

Grading Scheme:

Marked Quizzes on LEARN	10%
Crowdmark Assignments	30%
Midterm Assessment (2022-02-17, 18:00-19:30)	20%
Final Assessment (will be scheduled by the Registrar)	40%

Notes:

1. If I need to run the assessments online, then I will add some extra time to allow for potential technology issues. More details will be provided closer to each assessment.
2. You **must** pass the weighted average of the assessment portion in order to pass the course.
3. If you miss the midterm or the final without a valid justification (an illness supported with a Verification of Illness Form, a death in your immediate family, etc.), you will receive a grade of 0 on the assessment.

Rules for Group Work: **All work is to be done individually.** The penalty for plagiarism on assignments (first offense) is an assigned mark of 0 on the assignment and a 5% reduction of the final grade, consistent with School of Computer Science policy.

In addition, a letter detailing the offense is sent to the Associate Dean of Undergraduate Studies, meaning that subsequent offences will carry more severe penalties, up to suspension or expulsion.

Many universities offer similar courses to CS 360, and you can probably find the answers to some homework assignment problems with clever searching. Do **not** do this. Similarly, do not look in other books on the subject for help, do not ask your friends (and do not discuss assignments outside of broad ideas). It is not worth it: if you do not know how to answer a question, come talk to the instructor. I am paid to help you.

Crowdmark Assignments: There will be assignments, posted approximately biweekly on the **LEARN** site, due in Crowdmark. For details, refer to the unsecured course website.

Marked Quizzes: There will be marked quizzes posted on the LEARN site, due in the weeks when no Crowdmark assignment or mid-term assessment will be due. For details, refer to the unsecured course website.

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. Check `http://www.uwaterloo.ca/academicintegrity/` for more information.

Grievances: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4,
`http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm`. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about rules for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate Dean. For information on categories of offenses and types of penalties, students should refer to Policy 71, Student Discipline,
`http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm`. For typical penalties check Guidelines for the Assessment of Penalties,
`http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm`.

Appeals: A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals,
`http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm`.

Note for students with disabilities: AccessAbility Services,
(`https://uwaterloo.ca/accessability-services/`), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.