CSC320: Foundations of Computer Science

Course Dates

CRN(s): Section A01 CRN: 30174
Term: Summer 2018
Course Start: 2018-05-07
Course End: 2018-08-17

Scheduled Meeting Times (M=Mon, T=Tue, W=Wed, R=Thu, F=Fri)

Section:	Location:	Classes Start:	Classes End:	Days of week:	Hours of day:	Instructor:
A01	ECS 116	2018-05-07	2018-08-03	MR	13:00-14:20	Bruce Kapron
T01	ECS 104	2018-05-14	2018-08-03	T	13:30-14:20	
T02	ECS 130	2018-05-14	2018-08-03	T	14:30-15:20	
T03	ECS 130	2018-05-14	2018-08-03	T	15:30-16:20	

Instructor(s)

Name: **Bruce Kapron**
Office: ECS 620
Phone: (250) 472-5725
Email: bmkapron at uvic dot ca

Office Hours:	Comments
Tue 09:30am-12:30pm	

Course Overview

We will use formal models to investigate the nature and limits of computation.

Topics

- Formal definitions of computation, languages and computability
- Models of computation: finite state automata, grammars and Turing machines
- The Halting Problem, reductions, and NP-completeness
- The Satisfiability problem and applications of SAT solvers

Course Objectives And Learning Outcomes

Our goal is to understand when it is possible to solve a problem computationally, and how limitations on computational resources limit the class of problems that can be solved. We will develop tools for solving problems in various computational models, and for proving that a solution is not possible. We will characterize the class of problems solvable in a model and understand what it means for models to be equivalent. We will examine the importance of reductions between problems from a theoretical and practical perspective.

Textbooks

Required:	**Introduction to the Theory of Computation, 2nd or 3rd edition**
	by Michael Sipser

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	Link to E-book: https://www.nelsonbrain.com/shop/en/CA/storefront/canada?cmd=CLHeaderSearch&fieldValue=9781133187790

Homework Assignments

- There will be reading assignments each week, and five homework assignments (problem sets) due on alternating Thursdays. Problem set grades will be based on the best four of the five assignnments. Therefore, **no late assignments will be accepted** (note that this overrides the policy on late assignments stated below in Course Policies and Guidelines.)
- There will also be a programming project involving the application of SAT solving, which will be assigned in the last month of classes.
- Students are encouraged to work in study groups, but to complete homework assignments individually. The project will be competed in groups.

Exams

There will be four unit exams in this course. The first 3 are worth 20% and the last is worth 15%
The tentative dates of exams are **Jume 7, June 28, July 19, August 2, 2018**.

Grading

Coursework	Weight (out of 100%)
Problem Sets	10%
Project	15%
Unit Exams	75%

Grading System

The University of Victoria follows a percentage grading system in which the instructor will submit grades in percentages. The University will use the following Senate approved standardized grading scale to assign letter grades. Both the percentage mark and the letter grade will be recorded on the academic record and transcripts.

F	D	C	C+	B-	B	B+	A-	A	A+
0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100

Grades	Description
A+, A, A-	**Exceptional**, **outstanding** or **excellent** performance. Normally achieved by a minority of students. These grades indicate a student who is *self-initiating*, *exceeds expectation* and has an *insightful* grasp of the subject matter.
B+, B, B-	**Very good**, **good** or **solid** performance. Normally achieved by the largest number of students. These grades indicate a *good* grasp of the subject matter or *excellent grasp in one area balanced with satisfactory grasp in the other areas*.
C+, C	**Satisfactory**, or **minimally satisfactory**. These grades indicate a *satisfactory performance and knowledge* of the subject matter.
D	**Marginal Performance**. A student receiving this grade demonstrated a *superficial grasp* of the subject matter.
F	**Unsatisfactory performance**. Wrote final examination and completed course requirements; no supplemental.

Posting of Grades

Typically marks for assignments, examinations, and provisional final grades, are made available through conneX, or CourseSpaces where each student will be able to view only their own grades. Sometimes numerical marks/grades may be posted publicly to the entire class. In that case, full student numbers or names will not be included with the posted information.

Course Experience Survey (CES)

I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me

regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to the CES site

You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. I will remind you closer to the time, but please be thinking about this important activity, especially the following three questions, during the course.

- What strengths did your instructor demonstrate that helped you learn in this course?
- Please provide specific suggestions as to how the instructor could have helped you learn more effectively.
- Please provide specific suggestions as to how this course could be improved.

Csc Student Groups

The Computer Science Course Union (https://onlineacademiccommunity.uvic.ca/cscu/) serves all students who are either in a computer science program or taking a class in computer science. Please sign yourself up on their mailing list if you would like to be informed about their social events and services.

The Engineering Students' Society (ESS) serves all students registered in an Engineering degree program, including Software Engineering (BSEng). For information on ESS activities, events and services navigate to http://www.engr.uvic.ca/~ess .

Course Policies And Guidelines

Late Assignments: No late assignments will be accepted unless prior arrangements have been made with the instructor **at least 48 hours before** the assignment due date.
Coursework Mark Appeals: All marks must be appealed **within 7 days** of the mark being posted.
Attendance: We expect students attend all lectures and labs. It is entirely the students' responsibility to recover any information or announcements presented in lectures from which they were absent.
Electronic devices in labs and lectures: No unauthorized *audio* or *video* recording of lectures is permitted.
Electronic devices in midterms and exams: Calculators are only permitted for examinations and tests if explicitly authorized and the type of calculator permitted may be restricted. No other electronic devices (e.g. cell phones, pagers, PDA, etc.) may be used during examinations or tests *unless explicitly authorized*.
Plagiarism: Submitted work may be checked using plagiarism detection software. Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the link given below for the UVic policy on academic integrity. Note that the university policy includes the statement that "A largely or fully plagiarized assignment should result in a grade of F for the course."

The Faculty of Engineering Standards for Professional Behaviour are at
http://www.uvic.ca/shared/shared%5fengineering/docs/professional-behaviour.pdf
U.Vic guidelines and policy concerning fraud and academic integrity are at
http://web.uvic.ca/calendar/undergrad/info/regulations/academic-integrity.html
U. Vic Privacy Policy: If any student has concerns about their private information being stored or accessed outside of Canada, they are required to inform the course instructor about their concerns before the end of second week of classes.

Equality

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning (formerly the Resource Centre for Students with a Disability) located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.