EXPANDED COURSE DESCRIPTION
ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
Lassonde School of Engineering
Electrical Engineering Computer Science
LE / EECS 2001 3.0 SECTION M
INTRO. TO THE THEORY OF COMPUTATION
FALL 2019 / WINTER 2020

Last Modified Date: 08/02/2019

COURSE CALENDAR DESCRIPTION
Introduction to the theory of computing, including automata theory, formal languages and Turing machines; theoretical models and their applications in various fields of computer science. The emphasis is on practical applications of the theory and concepts rather than formal rigour. Prerequisites: cumulative GPA of 4.50 or better over all major EECS courses (without second digit "5"); LE/EECS 1021 3.00 or LE/EECS 1022 3.00 or LE/EECS 1720 3.00 or LE/EECS 1030 3.00; LE/EECS 1028 3.00 or SC/MATH 1028 3.00 or LE/EECS 1019 3.00 or SC/MATH 1019 3.00. Previously offered as: LE/CSE 2001 3.00. PRIOR TO SUMMER 2013: SC/CSE 2001 3.00.

INSTRUCTOR(S)

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<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
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<tr>
<td>Edmonds, Jeffrey A</td>
<td>Sec. M / LECT / W</td>
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ADDITIONAL INFORMATION

TOPICS
- Machine Learning
- Math Preliminaries
- Turing Machines and Other Models
- DFA MACHINES
- DFA Classes
- Context Free Grammars
- Countable and Uncountable Infinite
- Undecidability
- Reductions for Uncomputability
- No Proof System for Number Theory
- NP-completeness

COURSE LEARNING OUTCOMES
- Design machines (i.e., finite automata, Turing machines) to solve specified decision problems
- Design regular expressions and context-free grammars for a given language
- Explain why an object designed in bullets (1) or (2) correctly meets its specification
- Prove simple properties about models of computation (e.g., that the class of regular languages is closed under complement)
- Demonstrate limits of computing by proving that a problem is not solvable within a particular model of computation
- Show how one problem can be reduced to another

GRADING SCHEME

5 Assignments: 0%
Practice Assignments: 0%
3 Midterms (Mi): Worth between 9%*3=27% and 18%*3=54%
Class Participation (P): Worth between 2% and 10%
Exam: Worth between 36% and 71%

ACADEMIC INTEGRITY LINKS
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

LAND ACKNOWLEDGEMENT
• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

Moodle @ York University