

COMP 330 Fall 2021 Lecture 1

Prakash Panangaden¹

¹School of Computer Science
McGill University

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Welcome to COMP 330

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- How should you address me?

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- as is Sir
- but not “Your lordship.”

Course Title

Official Title

Theory of Computation

TAs

Responsible for answering queries on the discussion group, office hours and helping with grading assignments, mid-terms and finals.

Course Administration

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Lecture notes, assignments and solutions will be posted there.

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- 8 Do not send me, or the TAs, messages through Facebook.

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- 1 online midterm: 10% of your grade,
- Final exam 3 hours: 60% of your total grade.
- The final exam and the midterm must be done by yourself without looking up solutions on the internet or discussing them with your friends.
- I am requesting an in-person final exam but it has not been confirmed yet.

Finite state automata

- Basic mathematics and logic
- Deterministic finite automata, regular languages
- Nondeterministic finite automata
- Regular expressions
- Minimization
- The pumping lemma

Context-free languages

- Grammars
- Pushdown automata
- Parsing
- The pumping lemma for context-free languages

Computability

- Models of computation
- Undecidable problems
- Reduction techniques
- Advanced topics

The role of language

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- Computers are **completely unforgiving!!**
- In order to train our minds we need to learn to speak carefully.
- Every sentence has to be constructed with care.

English sloppiness that drives me crazy

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- “I would like eggs and bacon or sausages.” Ambiguity
- “Dr. Lex Luthor is a former alumni of Gotham State.”
- Clearly does not know what “alumnus” means nor what is the singular form. I saw this in a newspaper article.

Logical reasoning

Many of the problems students have **with this class** are caused by imprecise use of language. Please read the first handout that I wrote.