

COMP 330 Winter 2021 Lecture 1

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Welcome to COMP 330

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- **not** Prof. Prakash!!
- Prakash (no title) is fine also
- as is Sir
- but not “Your lordship.”

Course Title

Official Title

Theory of Computation

TAs

- 1 Johanna Schwartzenruber
- 2 James Bodzay
- 3 Florestan Brunck
- 4 Qungyi Sun
- 5 Roland Riachi
- 6 Lin Xiao Zheng
- 7 Yue Wu

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

Course Administration

- 1 cs.mcgill.ca/~prakash/Courses/330/comp330.html
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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- 5 quizzes : 15% using the myCourses system.
- 1 online midterm: 10% of your grade,
- Final exam online 3 hours: 45% of your total grade.
- Final exam, midterm and quizzes must be done by yourself without looking up solutions on the internet or discussing with your friends.

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.

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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.