



# New Beginnings

Summer 2018

Theory

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**Course Description:** This course covers elementary discrete mathematics and related CS theory over an accelerated summer session. The goal is to prepare high achieving non-CS degree holders for the computer science masters program. We aim for notational fluency and familiarity with relevant mathematical definitions, ideas, and proof methods. Topics include proof methods, formal logic, sets, relations, elementary graph theory, functions, counting, and whatever else students find interesting

**Prerequisite(s):** None.

## Methodology:

- Tutorial/Seminar-style classroom meetings with low structure
- Motivating examples and worksheets
- Homework practice assignments
- Quiz/Exam assessment

## Textbooks:

- (1) *forall x: Calgary Remix*, <http://forallx.openlogicproject.org/> by PD Magnus, Tim But-ton, J. Robert Loftis, revised and remised by Aaron Thomas-Bolduc and Richard Zach.
- (2) *Sets, Logic, and Computation*, <http://builds.openlogicproject.org/courses/phil379/> Instigated by Richard Zach, with contributions from Samara Burns and Dana Hägg (2016)
- (3) *Philosophy of Computer Science* <https://cse.buffalo.edu/~rapaport/Papers/phics.pdf> by William Rapaport (draft 2018)
- (4) (Recommended:) *Introduction to the Theory of Computation* by Michael Sipser; any edition

## Course Policies:

- **How to Succeed**
  - Come to class and be an active participant!
  - Get to know your cohort, make friends, keep each other accountable, and teach each other.
  - Read the textbook and articles thoughtfully and purposefully!
  - Keep a file on everything and anything that interests you!
- **Collaboration** You are welcome and encouraged to work with other students on homework assignments. No more than 3 students per group. Turn in a single assignment per group.