PMATH 432/632, Winter 2022: First-Order Logic and Computability

Instructor: Jason Bell

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Lectures: MWF 10:30-11:20 a.m., RCH 206.

Material: First-order logic, syntax and semantics of first-order logic, formal proof system, completeness, compactness, ultraproducts and complete theories, Löwenheim-Skolem theorems, Turing machines, the Halting Problem, Gödel's incompleteness theorem, other topics.

Grading: Assignments 35%, Final Exam 65%.

Text. H.-D. Ebbinghaus, J. Flum and W. Thomas, Mathematical Logic, 2nd Ed., Undergraduate Texts in Mathematics, Springer, 1994.

Assignments: There will be seven assignments throughout the semester, which will be submitted electronically via Crowdmark.

Piazza: There is a Piazza discussion board where all course-related discussion will be held. The link piazza.com/uwaterloo.ca/winter2022/pmath432 can be used to join the board.