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*Inside Mathematics: An Undergraduate Course for Mathematicians and Educators*

For centuries, both mathematical inquiry and mathematics learning have been assumed to be principally logical. However, recent studies of the processes of human cognition and the nature of mathematical insight have revealed that mathematical learning and research are highly analogical. Moreover, the specific analogies that are made available can either help or hinder the development of mathematical knowledge. In 2019, the University of Calgary began offering the course *Inside Mathematics*, intended to address cognitive and ontological aspects of mathematics relevant for both future teachers and people interested in pursuing a career in mathematics. This course focuses on helping students learn about both the human nature of mathematics and how to communicate mathematical ideas effectively to different audiences, including K-12 students. Participants in the course not only need to develop their expertise in mathematics, but also need to learn how to think like a novice when they become experts. To achieve this goal, the expertise from mathematics and education are combined in a way that transcends both disciplines.

In this presentation, we will introduce the course, its underpinning ideas and teaching strategies, and the modifications we made based on student feedback. We will discuss how the course differs from other math courses and how the expertise from mathematics and education complement each other toward fulfilling the learning outcomes of the course.