

Phil 311:

Philosophy of Mathematics

Fall 2013

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Tuesdays and Thursdays: 4:05–5:25pm, Sherbrooke 688 Room 355

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Summary. Mathematics has exerted a particular attraction to philosophers throughout history. For example, tradition has it that the phrase “Let no one ignorant of geometry enter” marked the entrance to Plato's Academy, Kant famously argued that “ $5+7=12$ ” is a synthetic proposition that is knowable a priori, and Frege worried how we can determine whether Julius Caesar is a number or not. However, even after more than 2000 years of philosophical reflections on the nature of mathematical truths, the status of mathematical objects, the sources of mathematical knowledge, the applicability of mathematics in science, and the methodology of mathematical practice, these topics still continue to puzzle philosophers.

This course provides an historically informed introduction to philosophy of mathematics. It is intended to present an overview of prominent issues and arguments, to motivate the students to appreciate this fascinating subject matter, and enable them to discuss contemporary research in philosophy of mathematics. To this end, philosophical reflections on mathematics and particular episodes in the history of mathematics will be presented and discussed side by side. Simple examples from mathematical practice (mainly geometry, arithmetic, and algebra) serve as illustrations for the subject matter the philosophical reflections are about, and, at the same time, they serve as proving ground for the adequateness of the philosophical claims about mathematics.

Prerequisites. Introduction to Deductive Logic (Phil 210, or equivalent).

No particular background in mathematics above high-school level is required.

Textbook. The following book, which is available at The Word Bookstore, 469 Milton Street (5 mins. from the University Street Gates), is required for this course:

Stewart Shapiro, *Thinking about Mathematics*, Oxford University Press, 2000.

Additional reading materials will be made available on myCourses.

Requirements & grading. Students are expected to attend and participate in class, do the assigned readings, complete weekly homework assignments, write two critical summaries of recent research articles, and write a final paper. The final grade depends on homework assignments (20%), two critical summaries of contemporary research articles (20% each), and the final paper (40%). Every student can take up to two “late days” for handing in the homework assignments or papers during the semester. Otherwise, late homework will not be accepted (except in cases of documented emergencies; documentation to be submitted before the due date).

This is a new course that can be used to fulfill the ‘Analytic Philosophy’ degree requirement in philosophy (Minor: Group B, Major: Group A).

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