

SPRING 2017, MATH 80520, Topics in Mathematical Logic:

CATEGORICAL LOGIC

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We will study the category-theoretic approach to first order logic. This includes the generalization of “usual models” of a theory (i.e. models in the category of sets) to models in an arbitrary topos. My main objective is to see whether notions of categorical logic such as the classifying topos of a first order theory, are meaningful or useful for contemporary model theory.

I will try to make the course accessible to a broad audience.

Among the references are Makkai and Reyes, First order categorical logic, Peter Johnstone, Sketches of an elephant, and Moerdijk and Maclane, Sheaves and Logic.