Master’s Student,  

**Austin Laine** will speak on:  

**Ultra Products**  

Friday March 1, 2024  
DERR 240  
12:00pm-1:30pm  

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**Abstract**  

In Mathematical logic, it is common to think of what structures satisfy theories of interest. Many of these models are considered to be 'standard' in the sense that it's the model originally intended for its theory. Ultra Products collect models together and take a "vote", only interpreting symbols in a way the majority of models can agree on. This creates a new potentially nonstandard model. Model theorists use this to produce new interpretation's of existing theories as well as to prove key results about the logics themselves that don't rely on syntax. In this talk we will go over how ultra products are made, discuss Los theorem for first order logic, and the construction of infinitesimals in nonstandard analysis.