PMATH 930 Topics in Logic: **Geometric Stability Theory**

Rahim Moosa   Fall 2025   Tuesdays and Thursdays, 3–4:30, MC5479

Stability theory is a part of model theory (itself a part of mathematical logic) that has had significant applications to algebra, geometry, number theory, and combinatorics. In this course I will focus on the "pure" development of the subject.

I plan to roughly follow Chapter 1 of Anand Pillay's new book *Topics in Model Theory*, hopefully with time left over for further topics. But the lectures will be self-contained.

While this course is a follow-up to PMATH 433 (Model Theory) from Winter 2025, it is open to all graduate and undergraduate students who have some familiarity with model theory.

Prerequisites: I will expect familiarity with the following topics: first-order languages, structures, theories, models, elementary extensions, the compactness theorem, definable sets, types, saturation. A rough guide would be the material covered in the first 150 pages of *Model Theory: An Introduction* by David Marker.

Assessment: There will be some (6?) written assignments and possibly a final project. No midterm or final exam.