# MATH 595—O-MINIMAL STRUCTURES

**Instructor:** Philipp Hieronymi

**Time:** MWF 1–1:50pm

**Place:** 7 Illini Hall

**Content.** This course gives an introduction to the construction of o-minimal structures on the real field. The main results discussed in the course will be the o-minimality of the following structures:

- $\mathbb{R}_{exp}$, the real field with the exponential function ([4]),
- $\mathbb{R}_{an}$, the real field with all restricted analytic function ([1]), and
- $\mathbb{R}_{an,exp}$, the real field with the exponential function and all restricted analytic functions ([2, 3]).

**Prerequisites.** Knowledge of Math 570 and Math 571 are helpful, but not strictly necessary. This course is designed as a sequel to the course 'O-Minimality' given as part of the REGS summer program 2013, but participation in that course is not a prerequisite for this Math 595 course.

## References


[1] J. Denef, L. van den Dries, $p$-adic and Real Subanalytic Sets, *Ann. Math.* 128 (1988) 79–138

[2] L. van den Dries, C. Miller, On the real exponential field with restricted analytic function, *Israel J. Math.* 85 (1994) 19-56

[3] L. van den Dries, A. Macintyre, D. Marker, The elementary theory of restricted analytic fields with exponentiation, *Ann. Math.* 140 (1994) 183-205

[4] A.J. Wilkie, Model completeness results for expansions of the ordered field of real numbers by restricted pfaffian functions and the exponential function, *J. Amer. Math. Soc.*, 9 (1996) 1051-1094