

MATH 648 SYLLABUS

KALINA MINCHEVA

Course description: This course will be an introduction to tropical geometry. This is the study tropical varieties which are combinatorial objects (polyhedral complexes) associated to classical algebraic varieties. These objects encode a wealth of information about the original varieties. Topics include: Groebner and Tropical bases, structure of tropical varieties, the fundamental theorem of tropical geometry, tropical linear algebra, matroid theory, toric connections. If time allows we will discuss tropical schemes and commutative algebra over the max-plus semiring.

Textbook: Introduction to Tropical Geometry, by D. Maclagan and B. Sturmfels, Graduate Studies in Mathematics vol 161

Prerequisites: Familiarity with commutative algebra and undergraduate algebraic geometry will be very helpful.

Class: TTh 11:35-12:50, HLH17 113

Course webpage: <http://users.math.yale.edu/~km995/tropicalS17.html>

Grading: Homework sets

Homework: Homework will be due at the beginning of class every other Tuesday. Assignments will be posted on the course webpage in advance.

You are welcome and encouraged to collaborate with other students, but please acknowledge your collaborations in your write-up.