

Course announcement

Algebra and Computation (MIT 6.S897)

Prereq: 6.840 + 6.046 + 18.703

Time: MW 11:00-12:30pm

Location: [34-304](#)

3-0-9 H-Level Grad Credit

Homepage: <http://people.csail.mit.edu/madhu/ST12/>

This course studies the interplay between algebra and computation. The course will be divided in two parts.

- The first part will cover some strikingly efficient algorithms in Algebra, Number Theory, and Group Theory. Some topics include algorithms for factoring polynomials (Berlekamp, Lenstra-Lenstra-Lovasz etc.) and algorithms for testing primes (Agarwal-Kayal-Saxena), multiplying matrices ((hopefully) Coppersmith-Winograd + Williams, Cohn-Umans-Kleinberg-Szegedy), Solving systems of polynomial equations etc.
- The second part of the course will focus on the interplay between complexity theory and algebra as highlighted by algebraic versions of the P vs. NP question.

See <http://people.csail.mit.edu/madhu/FT98> and <http://people.csail.mit.edu/madhu/FT05> for notes from an earlier version of this course.

Instructor: [Madhu Sudan](#)

Alert: Please email the instructor asap if you are interested in the course.