Title: Point Processes and Stochastic Geometry

Instructor: Joel Tropp

Course number: ACM 270

Units: 3-0-6

Time: 2:30-3:55PM T/Th

Grading: Letter

Description: This course will cover the basic theory of point processes in Euclidean space and introduce a range of stochastic geometric models built from point processes and random closed sets. Example topics to be covered include: point processes as random counting measures, stationary of point processes, Palm theory, Poisson point processes, Cox processes, determinantal point processes, Boolean models, processes of flats, and random tessellations. Point processes and stochastic geometry models have been used to model random spatial patterns in a range of applications including physics, machine learning, image analysis, information theory, networks, wireless communications, biology, ecology, seismology, and cosmology.