This is an introductory course to the theory of random matrices and their various applications.

Topics include: Gaussian, Wigner, Wishart, and Haar random matrices. Eigendistributions of random matrices. Semi-circle (and related) laws. Rotationally-invariant random matrices. Connections to orthogonal polynomials. Itzyskon-Zuber integrals. Stieltjes transforms and free probability. Asymptotic results and concentration.

Applications to wireless communications, signal processing, random graphs, clustering and community detection, compressed sensing, hypothesis testing, and others will be covered.

T-Th 10:30 am to noon
Moore 080