



CAAM/MATH/STAT 498/698 · Fall 2010

Random Matrix Theory

Tuesdays 4–5pm · Keck 101

David Damanik · Mark Embree

Genevra Allen · Kathy Ensor

‘Random Matrix Theory’ is this year’s VIGRE Theme, which we mark with a series of seminars from MATH, CAAM, and STAT.

1. Jacobi matrices and their eigenvalues
2. The Birkhoff Ergodic Theorem
3. Integrated density of states
4. Local eigenvalue statistics
5. Non-Hermitian tridiagonal random matrices
6. Pseudo-ergodic sequences; resolvent growth
7. Circle law (dense random matrices)
8. Semicircle and quarter-circle laws
9. SVD and application to high dimensional data
10. Principal components, positive matrix factorizations
11. Matrix variate distributions
12. SVD of time dependent systems, with applications