

ELE 770
Statistical Signal Processing
Spring 2015

Place: E9

Time: Tuesday 13:00-15:45

Course Outline:

Week 1-F17- Metric Spaces

Week 2-F24- Norms, Orthogonal Spaces, Projections, Random Vectors,
2nd Order Representations

Week 3-M03-Functions of R.V., Gaussian R.V., Orthogonal Projections,
Gram-Schmidt Ort.

Week 4-M10- Random Processes, Gaussian Pr., Markov Proc., Random
State Models

Week 5-M17-Analysis of Systems, Spectral Factorization, Rational
Modeling, Estimation

Week 6-M24- Bayesian Estimation, MAP, MLE,MSE, Multiple
Parameter Est

Week 7-M31- LMSE, Geometric Interp.

Week 8-A07- EXAM

Week 9-A14- Wiener Filter

Week10-A21-Wiener Filter(cont.)

Week11-A28-Levinson Filter

Week12-M05-Kalman Filter

Week13-M12-Kalman Filter (cont.)

Week14-M19-No Class (Holiday)

References:

Fundamentals of Statistical Signal Processing, Vol. I & II, S. Kay,
Prentice-Hall.

Mathematical Methods and Algorithms for Signal Processing, T.K. Moon
and W.C. Stirling, Prentice-Hall.

Optimum Signal Processing, S.J. Orfanidis, McGraw-Hill.

Introduction to Statistical Signal Processing Applications, Srinath et.al.,
Prentice-Hall.

Grading: 1 term exam (35%), homeworks (15%), final exam (50%).