1. ***Linear Algebra and Vector Spaces:*** *fields, vector spaces, matrix algebra, eigenvectors, singular value decomposition (SVD), norms, subspaces*
2. ***Hilbert Spaces:*** *Elementary functional analysis*
3. ***Constrained Optimization:*** *Convexity, Lagrange parameters, Karush-Kuhn-Tucker (KKT) conditions*
4. ***Probability Theory:*** *Functions of a random variable, maximum likelihood, basic inference*
5. ***[If time permits} Information Theory:*** *Jensen's inequality, entropy, divergence measures*