Classes of Combinatorially Defined Matrices

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My lectures will be on three different topics whose informative titles are given below. The three lectures will be independent of one another, and background on these topics will not be assumed.

I. Permutations, X-rays, Tournaments, Partial Latin Squares, Transversals, and Skolem Sequences.

II. All Things Bruhat: Matrix Bruhat Decomposition, Bruhat Order on Permutation Matrices, (0,1)- and Integral Matrices.

III. Alternating Sign Matrices: History, Patterns, Completions, Spectral Radius, and Generalizations.