Problems in extremal set theory take the form of determining the maximum number of subsets of \( \{1, 2, \ldots, m\} \) you can choose so that the resulting family of subsets has some property. The property I will consider is a trace being forbidden (in hypergraph terms a subhypergraph being forbidden). An incidence matrix encodes the system of subsets as an \( m \)-rowed (0,1)-matrix \( A \) with no repeated columns. The forbidden trace becomes a ‘forbidden configuration’ namely for some given (0,1)-matrix \( F \) you are forbidding \( A \) from having any submatrix which is a row and column permutation of \( F \).

One defines \( \text{forb}(m, F) \) as the maximum number of columns, over all \( m \)-rowed (0,1)-matrices with no repeated column and no submatrix which is a row and column permutation of \( F \). This concept of forbidden configurations appears in a variety of problems of which the study of VC-dimension has been the most notable. I will discuss a number of the bounds obtained and the interesting variety of proofs.