

DEPARTMENT OF MATHEMATICS

ORAL EXAMINATION

Major area: COMBINATORICS AND GRAPH THEORY

- (1) **CORE MATERIAL**
Introductory Combinatorics, Brualdi, Chapters 1,2,3,5,6,8.
(Combinations, permutations, pigeonhole principle, binomial and multinomial coefficients, inclusion-exclusion principle, special numbers such as Catalan and Stirling.)

(Also see Lovasz, Exercise in Comb.)

Generatingfunctionology, Wilf, Chapters 1,2.
Graphs & Digraphs, Chartrand and Lesniak, Chapters 1,2,3,6,8,10.
- (2) **ADVANCED COMBINATORICS**
Generatingfunctionology, Wilf, Chapters 3,4.
Plus Chapter 13 of Brualdi. (Polya's theory.)
- (3) **ADVANCED GRAPH THEORY**
Graphs & Digraphs, Chartrand and Lesniak, Chapters 4,5,11.
- (4) **ALGORITHMS**
Algorithms and Complexity, Wilf, Chapters 1,2,3,5.