

**UNIVERSITY OF PUERTO RICO  
RIO PIEDRAS CAMPUS  
DEPARTMENT OF MATHEMATICS**

**DATA STRUCTURE II  
M.S. QUALIFYING EXAM  
SYLLABUS**

Probabilistic Analysis and Randomized Algorithms; Medians and Order Statistics; Advanced Data Structures (Augmenting Data Structures; Red-Black Trees AVL Trees; B-Trees; Binomial Heaps); Dynamic Programming; Greedy Algorithms; Minimum Spanning Trees; Single-Source Shortest Paths Algorithms; Maximum Flow (Flow networks; The Ford-Fulkerson method; Maximum bipartite matching).

**THE MAIN REFERENCE:** Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rives, and Clifford Stein, *Introduction to Algorithms, 2/e*, The MIT Press, 2<sup>nd</sup> edition (September 1, 2001).