

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

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

The Role of Algorithms in Computing; Growth of Functions; Recurrences; Sorting and Order Statistics (Heapsort; Quicksort; Sorting in Linear Time); Elementary Data Structures; Hash Tables; Binary Search Trees; Elementary Graph Algorithms (Breadth-first search Topological sort, Strongly connected components).

**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).