

CS 212 – Fact Sheet/FAQ for Doctoral Prelim Exam

- What topics/materials are covered in the computer algorithms core area ?
 - To successfully pass this exam a student should know fundamental concepts of computer algorithms and their implementation
 - Basic topics include: principles of computer algorithm analysis, methodology of computer algorithm design, major problem solving techniques: divide-and-conquer, greedy method, dynamic programming, backtracking, and branch-and-bound, realization of fundamental data structures.

- How should I prepare for this area and what books should I read?
 - Preparing for the computer algorithm area implies reviewing undergraduate material in programming and data structures as well as material from the graduate course in computer algorithms
 - The exam questions may cover a number of topics. So, it is essential that you review all the fundamental concepts in this area. Pay attention to recommended exercises.
 - There is a large number of books that cover the computer algorithm topics. As the minimum reading requirement you should reference the material from your algorithm class.

- What format and time will the problems be?
 - A problem in the algorithm area will be expected to take 45 min to solve in the average case.
 - A problem typically consists of multiple parts, with each address different sides of a presented topic.
 - The questions may require a constructive solution and an elementary quantitative analysis.
 - Specific details, if needed to solve the problem, will be provided in the question.