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Reading: Important Prerequisites

This third course in the specialization focuses on data structures and algorithms. It is highly recommended that students take the first two courses that focus on more fundamental topics in algorithms and data structures before attempting this course.

Mathematical Background

We expect that the student is comfortable with basic mathematics at the level of a US College first year STEM student. This includes basic notions such as

- Sets and Functions: Properties of sets, definition and properties of functions.
- Logarithms and Exponentials: and their properties.
- Basic series summations: arithmetic and geometric series summations.
- Probability theory: basic definition of probability, independence of events, probability distributions and expectations.

CLRS has a helpful appendix but a student unfamiliar with these concepts can find numerous high quality explanations online.

Programming Background

The course involves solving programming assignments in Python. You must be comfortable with python programming.

- Basic control structures in python: conditional branches, for loops and recursion.
- Functions: defining and calling functions, and recursion.
- In-built data structures: Lists and Dictionaries
- Classes

Our use of python will get more sophisticated as the course progresses to accommodate some learning of python.