

# Syllabus for APC 430 Applied Data Structures

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**NOTE:** This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

## Course Description

This course covers fundamental concepts and the application of data structures and algorithms. Topics include abstract data types, dynamic arrays, iterators, linked lists, generics, stacks, queues, binary search trees, collections, maps, hashing, graphs, and sorting. It introduces a variety of application scenarios including graphics, web programming and user interfaces.

## Prerequisite(s)

APC 390: Object Oriented Programming

## Course Outcomes

Upon completing this course, you will be able to do the following:

- implement simple data structures (dynamic arrays, stacks, queues);
- explain the concepts of linked lists, binary search trees and hash tables;
- select an appropriate data structure for a specific task;
- write code that appropriately uses the selected data structures;
- implement simple algorithms (binary search, depth-first search, insertion sort);
- explain the concepts of merge sort, quick sort, breadth-first search;
- select an appropriate search or sorting algorithm for a specific task;
- write code that appropriately uses the algorithm;
- implement simple applications involving graphics, HTML and user interfaces.

## Course Requirements/Components

- Quizzes
- Interactive Sessions
- Labs
- Homework
- Reviews

## Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	0% - 59%

Evaluation Methods	Percentage of final grade
Quizzes	24%
Interactive Sessions	10%
Labs	10%
Homework	52%
Reviews	4%