Intro To C++ And Algorithms

- 1. Intro (1.5 hrs)
 - 1. Introduction to C++ (hello world, comparison to Python)
 - 2. I/O with cin and cout
 - 3. Types
- 2. Loops and Number Systems
 - 1. Decimal, binary, and hexadecimal
 - 2. Binary fractions
 - 3. "for" and "while" loops in C++
- 3. Strings, Functions, and Pointers
 - 1. Writing our own functions
 - 2. Passing pointers as function parameters
 - 3. Using strings with cin and getline()
- 4. Arrays and Vectors
 - 1. Static arrays
 - 2. Dynamic arrays
 - 3. The vector class
- 5. Algorithms Sorting
 - 1. Insertion Sort
 - 2. Bubble Sort
- 6. The Preprocessor
 - 1. #define and #include
 - 2. #define macro usage
 - 3. Words of warning
- 7. Structs and Classes
 - 1. Defining and using structs
 - 2. Defining and using classes
- 8. Operator Overloading
 - 1. Constructors
 - 2. Function overloading
 - 3. Operator overloading
- 9. Recursion
 - 1. The relationship between loops and recursion
 - 2. Solving a common recursive problem (factorial)
 - 3. Generating the Fibonacci series