CS/IS 130 - INTRODUCTION TO ALGORITHMS
Topics for Midterm Review

Java Language Fundamentals

Ability to write syntactically correct java code using: keywords, identifiers, operators and operands, constants, literals, variables
Creating complex numerical, Boolean, and string expressions
Using primitive and reference types
Knowing operator precedence
Using proper control structures to express an algorithm: conditional statements (if-else, switch-case-default), loop statements (for, enhanced for, while, and do-while)
Casting between primitive types, parse methods
Using return to exit a method or return a value and System.exit() to exist a program

Arrays

Arrays, processing array elements
Passing arrays as arguments, returning arrays from methods
String arrays, arrays of objects
Two-dimensional arrays, three-dimensional arrays, multi-dimensional arrays
Ragged arrays
Command-line arguments
Variable-length argument lists
ArrayList class
Linear Algorithms (Searching, Sum/Average, Find-Max, Find-Min)

Object-Oriented Programming, Classes and Objects

Constructors, Instantiation, creating objects, new operator, instance fields and instance methods, static fields and static methods, method signature

Text File Input/output

File, Scanner, PrintWriter classes
Checking a file for existence
Opening a file for sequential reading
Opening a file for writing in an overwrite mode
Opening a file for writing in an append mode

Data Structures and Algorithms

Arrays
ArrayLists
Linear Algorithms (Searching, Sum/Average, Find-Max, Find-Min)
Sequential search