Midterm Exam – List of Topics

To perform well on CSE1322L Midterm Exam, students should be thoroughly familiar with the topics listed below. For in-depth knowledge of the topics, students should refer to the course textbooks, lecture slides, D2L videos/example code, in-class lectures/recitations, and quizzes.

Students who are uncomfortable with any of the topics should reach out to instructors, GTAs and tutors.

For practice problems and examples see the old exams and practice bank on our website.

Given the following topics, students should be prepared to define terms, trace code (in any language) and provide output, and code simple programs:

- **Module 1:**
  - Variables (primitive vs complex)
  - Reading/Writing to the console
  - Conditionals (if/then/else if/else, case)
  - Logical operators (<, <=, >, >=, ==, !=, and, or, not)
  - Arithmetic operators (+, -, *, /, %, +=, -=, *=, /=, ++, --, difference between x++ and ++x).
  - Methods (declaring, return types, parameters, calling, arguments)
  - Loops (for, while, do, foreach)
  - Operator Precedence (i.e. Order of Precedence)
  - Arrays (defining, accessing cells, traversing, array properties such as length)
  - Two dimensional arrays (defining, accessing cells, traversing, properties)
  - Classes (defining, attributes, getters/setters, writing methods, instantiating (new), encapsulation, constructors (default & overloaded), static keyword (methods & attributes))
  - Driver (“dot” . operator (for methods and attributes), calling methods, accessing attributes in objects/classes).

- **Module 2:**
  - ArrayLists or Lists (Defining, adding, accessing, removing items, getting size, iterating through)
  - Passing by Value (especially tracing code with arguments going to methods)
  - Passing by Reference or passing an object.
  - Returning values from a method
  - Garbage, how it’s made and dealt with
  - Method Overloading

- **Module 3:**
    - Inheritance (what can be inherited, why we use inheritance, instanceof, is keywords)
    - Overriding methods (e.g. toString()/ToString)
    - Object/object
    - this vs super/base
    - Public/Private/Protected
    - Polymorphism (What it is, and how to use it, Relationship to inheritance, Late Binding)
    - Abstract classes (How/when to use them, understanding mix of abstract and concrete methods,
    - Interfaces (How/when to use them, understanding they have only abstract methods)
    - Casting (How it's used)