

CISC 3120 Midterm Exam topics

This guide intends to give a brief overview of some of the topics we covered in class. It can be used as a check list, however **you should know everything that we have covered in class even if it is not mentioned here.**

Topics

Unit I: Java and intro to OOP

Resources: Chapters 1, 3, 4, 5 & 6 from Core Java textbook and lecture notes posted on the course website. Topics/questions:

- How do you compile and run Java applications. What is the name of the compiler? What is JVM? What is bytecode?
- Basic programming constructs: primitive data types, operators (logical, arithmetic), control-flow etc.
- Difference between the primitive variables and object references. How do primitive and object references are treated when they are passed as an argument to a method? How to define constants?
- Arrays/Vectors, declaration, instantiation etc. Arrays/Vectors of objects.
- What is type casting? When casting is necessary?
- What is a class? Describe the structure of a Java class. What is an object, how do you instantiate one?
- What are *public*, *private*, *protected* keywords mean and what are they used for?
- What is an exception? What is the exception handling mechanism in Java?
- What are `static` members and methods? How do you refer to them?
- What is inheritance? How do you inherit from another class in Java? Which members/methods of the parent class does the subclass has access to?
- What is function overriding and how is it different than overloading?
- Usage of `this.`, `this()`, `super.` and `super()` keywords.
- What are abstract classes and method? How do you define an abstract class/method in Java?
- What is an interface? What is the difference between an interface and an abstract class?
- Define encapsulation, polymorphism and dynamic binding.