

**International Bachelorette  
Standard Level Computer Science**

**CS 471 Fall 2015 Year One**

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**Professor:** Dr. Anthony Schultz, Academic Building, [tony.schultz@ef.com](mailto:tony.schultz@ef.com)

**Extra Hours:** Mondays 4-6 PM Room 119

**Textbook:** *Java: Software Solutions* 3rd edition, by John Lewis

**Course Outline:**

**I. Week One - September 14th-18th**

**A. Zero**

- Welcome and personal introductions
- Review syllabus and structure of the course
- Basics of bash directory navigation and commands
- Basics of Git and L<sup>A</sup>T<sub>E</sub>X
- Open Source, intellectual property, Creative Commons, Free Software

**B. Hello World**

- Basic Python
- My first program
- Variables and assignments
- Primitive data types (integers, floats, booleans)
- Strings
- Arithmetic expressions (+, -, \*, /, %)
- Conditional statements (if, else)

**II. Week Two - September 21st - 25th**

**A. Boolean Algebra**

- Equality, relational and boolean operators
- Boolean arithmetic (and, or, not)

**B. Loops**

- For loops
- While loops

**C. Arrays**

### III. Week Three - September 28th - October 2nd

#### A. Basic Programming

- Program structure
- Algorithm design
- Nested loops

#### B. Numbers

- Bases (binary, decimal, hexadecimal, char)
- Bits and bytes
- Base conversion

### IV. Week Four - October 5th - 9th

#### A. Libraries

- Importing libraries
- Standard libraries
- Mathematics libraries

#### B. Useful Modules, Packages and Libraries

- Basic graphics

### V. Week Five - October 12th - 16th

#### A. Functions

- Writing functions

### VI. Week Six - October 19th - 23rd

#### A. Introduction to Java

- Basics of Java
- Hard typed languages

#### B. Objects I

- Introduction to objects
- Object instances
- Object methods

### VII. Week Seven - October 26th - 30th

#### A. Objects 2

- Writing objects
- Writing object methods

## VIII. Week Eight - November 2nd - 6th

### A. Classes 1

- Basics of classes
- Writing classes
- Constructors
- Interfaces

## IX. Week Nine - November 9th - 13th

### A. Classes 2

- Subclasses
- Inheritance
- Super reference
- Polymorphism

## X. Week Ten - November 16th and 20th

### A. Graphical User Interfaces

- Basic GUI

### B. Input and Output

- Keyboard events
- Text file input
- Text file output

## XI. Week Eleven - November 23rd - 25th

### A. Review

**GitHub Work Portfolio:** This course will require you to write code frequently. To get credit all your code projects must be uploaded to GitHub using the git command line. This will constitute 20% of your grade.

**Homework:** There will be homework in this course. Homework will be completed and kept in a notebook or binder. This will constitute 20% of your grade.

**Papers:** There will be two papers in this class. Papers will be written in L<sup>A</sup>T<sub>E</sub>X. They make up 20% of your grade.

**In-Class Assessments:** In-class assessments throughout the semester will make up 20% of your grade.

**Final:** The final will have an in-class and take-home portion. It will make up 20% of your grade.