## C11238: Visual Programming

## Class 1: Intro and Basics of Programming in Processing

* 0-20min: Intro and what you’re going to get out of this class and the tools we’ll be using
  + Hi I’m Nina! :D
  + What is programming?
  + What you can do with visual programming and how it’s different and similar to regular programming
  + Roadmap of the class
* 20-50min: GitHub Tutorial
  + Concept of GitHub as version management
  + Using GitHub and setting up your GitHub account and your first repo for this class
* 50-90min: Processing Tutorial
  + Background on Processing
  + The anatomy of a Processing Sketch
  + The main Processing Primitives
    - Colors and the canvas
    - Built in shapes
    - Mouse interaction
    - Randomness
    - Variable types

## Class 2: Fundamentals of Programming: Pong Game

Throughout the class we’ll be building all these into a Pong Game :D

* 0-10min: Here is the structure and what we’ll cover
  + Conditionals and control flow
  + Functions
  + Classes/Objects
* 10min-30min: Classes/Objects
  + Writing a simple class
* 30-60min: Conditionals/Control Flow
  + if/else/else if
  + for
  + while
  + try, catch
* 60min-90min: Functions and methods
  + Writing some simple functions
  + Writing some specific type methods

## Class 3: Algorithmic Art and Data Visualization

* 0-10min: Intro to the two sketches we’ll be doing today and additional code that is in the GitHub
* 10-50min: Algorithmic Art Sketch Tutorial
  + Making a piece of algorithmic art and learning about recursion along the way
  + Doing L Trees and decorating your own :D
* 50-90min:
  + Making a simple data visualization with Twitter data
  + Using Twitter API to visualize the evolvement of memes

## Class 4: User Interfaces, Games, and Processing in 3D!

* 0-10min: What is a user interface in software?
  + Introduction to a GUI library
  + Buttons, menus, sliders, interactions (mouse, keyboard), textbox, switches/checkboxes, dropdowns
* 10-50min: Making a simple user interface and game
  + Making Tetris with your own UI! :D
* 50-90min: Just for fun; Processing in 3D! Making and lighting a digital city
  + 3D coordinate system in Processing
  + 3D primatives in Processing
  + Lights in processing
  + Programming a mini city

## Class 5: Group Projects Part 1

* 0-10min: Examples of some projects/ideas
* 10-40min: Students will form groups, brainstorm group projects, and outline the software they’ll need to program for this visualization
* Rest of class: Just working on projects, I’ll be bouncing around and helping as needed

## Class 6: Group Projects and Presentations

* 0-70min: Working on projects and debugging
* 70-90min: Project presentations :D