Programming for Artists | IDC 3500C/6505C

Spring 2014
University of Florida | SA+AH

Instructor: Thomas Storey  
Time: M/W 8-10 (3:00-6:00 pm)

Room: FAC 306  
Credit: 3

Email: thomasrstorey@ufl.edu

Office Hours: Mon 10:00-11:00 am (or by appointment) FAC 300

Class Website: http://art-tech.arts.ufl.edu/~tstorey/wiki/S14-Programming

Course Description:
This course introduces the use of the computers and programming to create art. It assumes minimal prior experience in programming, and asks for only a little math (If you remember some algebra and trigonometry you’ll be ahead of the curve). Programming for Artists will be highly practice/project based. We will be doing a lot of in-class work and exercises. In addition we will take some time to become acquainted to the worlds of computer art, net art, generative art, etc for inspiration, and so that we can contextualize our work in the larger computational milieu. We will get introduced to various programming languages, but all work and projects will be done in Processing (processing.org). We will be using GitHub to help us learn professional programming practices and to track and submit class work.

This class will not make you a computer scientist, but if you apply yourself with interest and enthusiasm, you will start on your way to becoming a programmer.

Objectives:
Students taking this course will:

- Practice the basics of programming languages and structure
- Develop and implement software projects.
- Implement object-oriented programming techniques.
- Practice professional programming best-practices and documentation.
- Gain a proficiency in Processing and Java programming languages.
- Harness concepts of computational aesthetics in artmaking.
- Interface custom code with existing APIs and libraries.
- Apply basic trigonometry and linear algebra to graphics programming.
- Survey past and contemporary computational art.
- Analyze, deconstruct and build potential solutions for projects/problems.
Course Components

As a student in this class, you are expected to:

- Attend every class and being attentive and enthusiastic!
- Work on programming exercises and activities in class
- Work on programming projects and assignments in and out of class
- Share and turn in your work with Git (Free, open source version control software. git-scm.com)
- Read, watch videos and engage in discussion about computer art in and out of class

Topical Course Outline (Tentative):

<table>
<thead>
<tr>
<th>PART ONE - WHAT IS THIS EVEN</th>
<th>Course introduction: Who am I? Who are you?? What are we doing here!? What is programming, why should you care? What are programming languages? What is Processing? The basics of programming. Assignment 1: Printing (Due midnight, Jan 12)</th>
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<tbody>
<tr>
<td>WEEK 2</td>
<td>Variables, Types, Operators, Pseudocode Assignment 2: Drawing with Code (Due midnight, Jan 19)</td>
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<td>WEEK 3</td>
<td>Functions, Parameters (Mon Jan 20 NO CLASS) Assignment 3: Mouse Interaction (Due midnight, Jan 26)</td>
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<td>WEEK 4</td>
<td>Object Oriented Programming Assignment 4: Let Me Paint (Due midnight, Feb 2)</td>
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<td>WEEK 5</td>
<td>OOP continued, Arrays Assignment 5: OOP - The Remake (Due midnight, Feb 9)</td>
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<td>WEEK 6</td>
<td>Algorithms, Debugging, Libraries, Modes Assignment 6: eCard (Due midnight, Feb 16)</td>
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<td>WEEK 7</td>
<td>Files, Images, Saving, Loading, Recursion Assignment 7: Video (Due midnight, Feb 23)</td>
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<td>PART TWO: MAKE IT HAPPEN</td>
<td>Physics, 3D Rendering, Introduction to GitHub PROJECT 1: REPEATREPEATREPEATREPEAT (See Handout and Form + Code reading) (Due midnight, Mar 9)</td>
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<td>WEEK 8:</td>
<td>SPRING BREAK</td>
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<td>WEEK 9:</td>
<td>SPRING BREAK</td>
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<td>WEEK 10:</td>
<td>Particles - Systems of physical simulation</td>
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<td>PROJECT 2: TRANSFOOOOOORM (See Handout and Form + Code reading) (Due midnight Mar 30)</td>
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| WEEK 11:       | Autonomy - Autonomous Agents               |
|               | In Class Project Work                      |

| WEEK 12:       | Complexity - Complex Systems               |
|               | In Class Project Work                      |

| WEEK 13:       | Sound - Generating and Sampling with libraries |
|               | FINAL PROJECT: SIMULATE (See Handout and Form + Code reading) (Due before class Apr 23) |

| WEEK 14:       | Evolution - Genetic Algorithms             |
|               | Research for Final Project                 |

| WEEK 15:       | Final Project Work in class                |

| WEEK 16:       | Final Project work in class                |
|               | FINAL CRITIQUE                              |

**Required Textbooks, Materials, and Equipment:**
- Learning Processing, by Daniel Shiffman
- Processing 2 (https://processing.org/download/)

**Recommended Readings:**
- The Nature of Code, Daniel Shiffman
- Form + Code, Casey Reas, Chandler McWilliams
- Java: The Good Parts, Jim Waldo
- Generative Art, Matt Pearson
- http://openprocessing.org/
- http://www.eyebeam.org/
- http://rhizome.org/
- http://ffff.at/
- http://eyeofestival.com/
Grading Breakdown:

| Project and Assignment Grades: 70% (70 pts) | 30% - Seven weekly Assignments (4.28% each)  
|                                           | 40% - 3 Projects (13.333...% each)  

| Documentation: 15% | Documentation of your work on GitHub (clear commits, useful comments, well formatted code, thoughtful project descriptions)  
| Participation: 15% | Attendance and class participation. Involvement in discussion, helping classmates, sharing ideas.  

Attendance Policy

Attendance is “required”. I don’t see any point to punishing you more than you are already punishing yourself for not being present. Being absent won’t look good on your participation grade, and you won’t have the benefit of your classmates’ and my help. This class is extremely in-class-work intensive - missing a class could potentially set you back significantly. Be smart. Come to class, and do it on time. You will have a much better semester for it. So, if you absolutely must be absent or late for some event or emergency, please let me know, but you don’t have to worry about me lowering your grade for it.

Late Policy

- Assignments are due generally at midnight on Sundays. Exception: the final project is due before final crit day.
- Late assignments will drop one letter grade per day late.
- An assignment more than a week late will receive an F!

Grading Criteria
• Exploration of Theme: Use of project theme as an aesthetic quality. (For projects only) 40%
• Feature completeness: Does your project meet the feature requirements of the assignment? (for assignments only) 40%
• Documentation/Code Quality: Code compiles, runs smoothly and as intended. Iterative commits to Git repository, with useful messages and comments. Useful project description in readme file on GitHub. 40%
• Inventiveness: Did you go beyond the basic requirements of the project or try new techniques? 20%

UF Grading Policies

University of Florida official grading policies can be found at https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

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<th>Grade</th>
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<td>A-</td>
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<td>B+</td>
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*Please Note: A grade of C- or below will not count toward major requirements.

Students With Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The DSO will provide documentation to the student who must then provide this document to the instructor. DSO can be contacted at: 352–392–1261 or http://www.dso.ufl.edu/dr

SA+AH Health and Safety Policy

The School of Art and Art History Safety Manual will be reviewed in class. Students and instructors are responsible for following policy and procedures for making art safely at all time. The entire document is available online http://saahhealthandsafety.weebly.com/handbook.html All students are required to sign and turn in the signature page to the instructor on the first day of class.

Digital Media Area Rules

• All users of the studio classrooms are expected to follow studio area rules at all times. If you have any questions, ask your instructor.
• Follow all SA+AH Health and Safety handbook guidelines (the handbook should be reviewed by your instructor and can be found at: www.arts.ufl.edu/art/healthandsafety)
• Follow the SA+AH Satellite Waste Management Chart in the classroom and other health &
safety guidelines posted for your media.

- In case of emergency, call campus police at 392-1111
- File an incident report (forms may be found in the SAAH H&S handbook, the SAAH faculty handbook and in the main office.) Turn completed forms into the SAAH Director of Operations within 48 hours of the event.
- Alcohol is forbidden in studios
- Familiarize yourself with the closest eyewash unit.
- No eating or drinking in computer lab.
- Do not use spray adhesive in the studios or in the building. There is a professional and safe paint spray booth in FAC-211A for your use.
- Shoes must be worn at all times.
- Protective equipment must be worn for hazardous work.
- Do not block aisles, halls or doors with stored items or when working. This is a violation of fire codes.
- Do not store anything on the floor. This impedes cleaning and creates a hazard.
- Installations must be removed as soon as possible after critique.
- Clean up spills immediately.
- Take items which do not fit into the trash to the dumpster, follow dumpster guidelines.
- Follow the SA+AH CONTAINER POLICY (see policy below)

There are 2 types of labels used in the SA+AH— yellow and white. Both labels are found at the red MSDS box and are supplied by the SA+AH. Each is used for a different purpose.

**White:**

All new and or used product in containers (hazardous or what might be perceived as hazardous -i.e. watered down gesso, graphite solutions, satellite containers of solvents, powders, spray paints, fixatives, oils, solvents, etc...) must be labeled within the SA+AH to identify their contents. Labels can be found at the MSDS box in each studio and work area. All containers must be marked with your name, contents and date opened. All secondary/satellite containers for hazardous materials must be marked with content, your name and the date opened. All unmarked containers will be disposed of with no notice.

**Yellow:**

WHEN HAZARDOUS ITEMS ARE DESIGNATED AS WASTE.

All containers must have a yellow label identifying the contents that are designated as trash for weekly EHS pick up.

- Flammable solid containers (red flip top) must have a yellow hazardous waste label on the outside
(top).
- 5 gallon jugs must have a yellow hazardous waste label on the outside.
- Fibrous containers must have a yellow hazardous waste label on the outside (top).
- Each item in the blue bin must have a yellow hazardous waste label.

Note: Hazardous Waste labels should include all constituents in the waste mixture as well as an approximate percentage of the total for that item and must add up to 100%.
Labels should also include the building and room number of the shop generating the waste along with the Waste Manager for your area, this is located on the SWMA sign posted at the sink or at the Waste Management Area.

**Academic Honesty Policy**

The university’s policies regarding academic honesty, the honor code, and student conduct related to the honor code will be strictly enforced. Full information regarding these policies is available at http://www.registrar.ufl.edu and http://www.dso.ufl.edu

**Online Course Evaluations**

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.
Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.