CODE 1 Introduction to Programming as a Creative Discipline

PUDT 2110 B, CRN 5170
6 E. 16th St., Room 602
Tuesdays 7:00-9:40 PM, Fall 2016

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Office hours by appointment

This course is an introduction to programming, the historical and cultural context of software in art and design, and the applications of "creative code" in a studio environment. Students will learn the fundamentals of all software development using the open source framework Processing, writing programs that generate visuals, handle data, and facilitate interactive experiences.

Learning Outcomes:
At the completion of this course, students should be able to:

- Demonstrate knowledge and application of fundamental programming concepts using Processing.
- Develop several working interactive/experiential projects using code as a medium for expression.
- Be able to discuss code and its applications critically in a broader cultural context.

Recommended Readings:
FORM+CODE, Casey Reas
10PRINT, Nick Montfort, Ian Bogost, et. al
Getting Started With Processing, Casey Reas & Ben Fry
Nature of Code, Daniel Shiffman

Materials and Supplies: N/A

Assessable Tasks:

- Class Participation: This includes being on time, asking questions if you need help, being engaged with the topic. Participation in this class is vital: 3 hours per week of class time to learn programming is not ideal. Our time together is extremely valuable; do not let it go to waste. No phones, Facebook, etc. Use common sense - I'll be present and engaged and I expect you all to be too.
    - Note: 3 lates = 1 unexcused absence
      3 unexcused absences = -1 grade level
- Reading Responses: For every assigned reading, write a 100+ word response that addresses that reading in Canvas. Responses are casual and are meant to generate discussion and creative thinking. Grading for reading responses will be assessed on if it is posted by the day of class.
- Homework: Homework will be assigned on a weekly basis and will typically be an application of whatever was covered that day, to be turned in the evening before the next class by posting the gist or github link of the code to Canvas. Grading for sketches is will be assessed on if the work is turned in on time. Do not fall behind schedule, you will have a **very** difficult time catching up.
- Final: The final project will be a polished interactive project. Group work may be possible depending on the project. Finalized constraints will be discussed in class. Grading of the final will reflect the success of a project in relation to the learning outcomes, assignment constraints, and if the project is on time.

Final Grade Calculation:

- Class participation & reading: 10%
- Homework sketches: 50%
- Final: 40%

Course Outline:

Week 1 - 8/30 - What is code, what is programming?

- Processing IDE, variables, basic arithmetic, functions, psuedocode, color, random
- *HW: pseudocode the world, FORM+CODE Ch.1*

Week 2 - 9/6 - Drawing, incrementing, calculating

- Gist/github, console, mouse variables, drawing functions, translation, rotation
- *HW: code an interactive visual scene, 10PRINT 10*

Week 3 - 9/13 - Control flow, logic

- Boolean logic, conditionals, text, images, debugging
- *HW: Use control flow for a slideshow, text adventure, or other sequential experience, 10PRINT 20*

Week 4 - 9/20 - Interaction, interface

- Distance, state, switch statements, keyboard, other inputs
- *HW: Design a user interface, 10PRINT 30*

Week 5 - 9/27 - Repetition

- Arrays, while loops, for loops, nested loops
- *HW: Create a dynamic pattern, FORM+CODE Ch.2*

Week 6 - 10/4 - Image processing

- Image processing, get, camera, video, histograms, slitscan, pixels array, frame buffer
- *HW: Create a portrait, FORM+CODE Ch.4*

Week 7 - 10/18 - Movement, dynamics

- Oscillation, trigonometric functions, Perlin noise, random walkers
- *HW: Create a visual composition via a random walker, FORM+CODE Ch.5*

Week 8 - 10/25 - Vectors, physics, simulation

- Bouncing ball, particle systems, Conway's Life, Flocking
- *HW: Hack the flocking example, 10PRINT 40*

Week 9 - 11/1 - Object Oriented Programming

- Objects, classes, arraylists
- *HW: Convert your old code to an OOP paradigm, FORM+CODE Ch.6*

Week 10 - 11/18 - Libraries

- *HW: Begin work on final, FORM+CODE Ch.7*

Week 11 - 11/15 - Data

Week 12 - 11/29 - 3D

Week 13 - 12/6 - Processing vs. Java vs. other frameworks

Week 14 - 12/13 - Final workshop

Week 15 - 12/20 - ***Final Presentations***

Resources
The university provides many resources to help students achieve academic and artistic excellence. These resources include:

- The University (and associated) Libraries: http://library.newschool.edu
- The University Learning Center: http://www.newschool.edu/learning-center
- University Disabilities Service: www.newschool.edu/student-disability-services/

In keeping with the university's policy of providing equal access for students with disabilities, any student with a disability who needs academic accommodations is welcome to meet with me privately. All conversations will be kept confidential. Students requesting any accommodations will also need to contact Student Disability Service (SDS). SDS will conduct an intake and, if appropriate, the Director will provide an academic accommodation notification letter for you to bring to me. At that point, I will review the letter with you and discuss these accommodations in relation to this course.

Grading Standards

Undergraduate
A student's final grades and GPA are calculated using a 4.0 scale. Please note that while both are listed here, the 4.0 scale does not align mathematically with the numeric scale based on percentages of 100 points.

A [4.0; 95 – 100%] - Work of exceptional quality, which often goes beyond the stated goals of the course
A- [3.7; 90 – <95%] - Work of very high quality
B+ [3.3; 87 – <90%] - Work of high quality that indicates higher than average abilities
B [3.0; 83 – <87%] - Very good work that satisfies the goals of the course
B- [2.7; 80 – <83%] - Good work
C+ [2.3; 77 – <80%] - Above-average work
C [2.0; 73 – <77%] - Average work that indicates an understanding of the course material; passable
Satisfactory completion of a course is considered to be a grade of C or higher.
C- [1.7; 70 – <73%] - Passing work but below good academic standing
D [1.0; 60 – <70%] - Below-average work that indicates a student does not fully understand the assignments;
Probation level though passing for credit
F [0.0; 0 – <60%] - Failure, no credit

Grade of W
The grade of W may be issued by the Office of the Registrar to a student who officially withdraws from a course within the applicable deadline. There is no academic penalty, but the grade will appear on the student transcript. A grade of W may also be issued by an instructor to a graduate student (except at Parsons and Mannes) who has not completed course requirements nor arranged for an Incomplete.

Grade of Z
The grade of Z is issued by an instructor to a student who has not attended or not completed all required work in a course but did not officially withdraw before the withdrawal deadline. It differs from an "F," which would indicate that the student technically completed requirements but that the level of work did not qualify for a passing grade.

Grades of Incomplete
The grade of I, or temporary incomplete, may be granted to a student under unusual and extenuating circumstances, such as when the student's academic life is interrupted by a medical or personal emergency. This mark is not given automatically but only upon the student's request and at the discretion of the instructor. A Request for Incomplete form must be completed and signed by student and instructor. The time allowed for completion of the work and removal of the "I" mark will be set by the instructor with the following limitations:

Work must be completed no later than the seventh week of the following fall semester for spring or summer term incompletes and no later than the seventh week of the following spring semester for fall term incompletes. Grades of "I" not revised in the prescribed time will be recorded as a final grade of "F" by the Office of the Registrar.

Divisional, Program and Class Policies

Responsibility
Students are responsible for all assignments, even if they are absent. Late assignments, failure to complete the assignments for class discussion and/or critique, and lack of preparedness for in-class discussions, presentations and/or critiques will jeopardize your successful completion of this course.

Participation
Class participation is an essential part of class and includes: keeping up with reading, assignments, projects, contributing meaningfully to class discussions, active participation in group work, and coming to class regularly and on time.

Attendance
Parsons' attendance guidelines were developed to encourage students' success in all aspects of their academic programs. Full participation is essential to the successful completion of coursework and enhances the quality of the educational experience for all, particularly in courses where group work is integral; thus, Parsons promotes high levels of attendance. Students are expected to attend classes regularly and promptly and in compliance with the standards stated in this course syllabus.

While attendance is just one aspect of active participation, absence from a significant portion of class time may prevent the successful attainment of course objectives. A significant portion of class time is generally defined as the equivalent of three weeks, or 20%, of class time. Lateness or early departure from class may be recorded as one full absence. Students may be asked to withdraw from a course if habitual absenteeism or tardiness has a negative impact on the class environment.

Whether the course is a lecture, seminar or studio, faculty will assess each student's performance against all of the assessment criteria in determining the student's final grade.

Canvas
Use of Canvas may be an important resource for this class. Students should check it for announcements before coming to class each week.

Delays
In rare instances, I may be delayed arriving to class. If I have not arrived by the time class is scheduled to start, you must wait a minimum of thirty minutes for my arrival. In the event that I will miss class entirely, a sign will be posted at the classroom indicating your assignment for the next class meeting.

Electronic Devices
The use of electronic devices (phones, tablets, laptops, cameras, etc.) is permitted when the device is being used in relation to the course's work. All other uses are prohibited in the classroom and devices should be turned off before class starts.

Academic Honesty and Integrity
Compromising your academic integrity may lead to serious consequences, including (but not limited to) one or more of the following: failure of the assignment, failure of the course, academic warning, disciplinary probation, suspension from the university, or dismissal from the university.

Students are responsible for understanding the University's policy on academic honesty and integrity and must make use of proper citations of sources for writing papers, creating,

presenting, and performing their work, taking examinations, and doing research. It is the responsibility of students to learn the procedures specific to their discipline for correctly and appropriately differentiating their own work from that of others. The full text of the policy, including adjudication procedures, is found at http://www.newschool.edu/policies/# Resources regarding what plagiarism is and how to avoid it can be found on the Learning Center's website: http://www.newschool.edu/university-learning-center/student-resources/

The New School views "academic honesty and integrity" as the duty of every member of an academic community to claim authorship for his or her own work and only for that work, and to recognize the contributions of others accurately and completely. This obligation is fundamental to the integrity of intellectual debate, and creative and academic pursuits. Academic honesty and integrity includes accurate use of quotations, as well as appropriate and explicit citation of sources in instances of paraphrasing and describing ideas, or reporting on research findings or any aspect of the work of others (including that of faculty members and other students). Academic dishonesty results from infractions of this "accurate use". The standards of academic honesty and integrity, and citation of sources, apply to all forms of academic work, including submissions of drafts of final papers or projects. All members of the University community are expected to conduct themselves in accord with the standards of academic honesty and integrity. Please see the complete policy in the Parsons Catalog.

NOTE: writing honest code is not exactly like writing an honest paper. There are many resources, guides, tutorials, and sample code made available by other designers and programmers out there, and it is fully encouraged to make use of them. However any code taken from other sources ABSOLUTELY MUST be cited with a URL at the very least, and used towards the end of building something that expresses your OWN vision rather than reproducing someone else's work.

Intellectual Property Rights: http://www.newschool.edu/policies/#