CODE 1

Introduction to Programming for Creative Expression

PUDT 2110 C, CRN 4187 | Parsons School of Design / The New School

6 East 16th St., Room 1204B
Fridays 4:00-6:40 PM, Fall 2019

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Office hours by appointment

COURSE DESCRIPTION

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 frameworks Processing or P5.js, writing programs that generate computational visuals and facilitate interactive experiences.

LEARNING OBJECTIVES

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

1. Demonstrate knowledge of fundamental programming concepts and basics of the Processing/P5.js API
2. Apply those programming fundamentals to create visual or interactive sketches and applications.
3. Understand and discuss code critically in an art and design context.

We will spend time in the first class talking about what these learning objectives mean, and how we will achieve them together.

STUDENT RESPONSIBILITIES

1. Treat class time as an opportunity.
2. Arrive to class on time, with all materials, ready to work steadily throughout the studio.
3. Be prepared with all your required materials for every class.
4. Complete assignments and readings on time.
5. Participate in class discussions and critiques. **LAPTOPS DOWN** when other students are demonstrating their work.
6. Confront difficulties in your work in the spirit of learning, creative exploration and personal growth.
7. Ask for help from your instructors when needed.
8. Respect your fellow students at all times.
9. Disruptive behavior is not tolerated.
10. You are responsible for cleaning up after yourself at the end of each class.
11. No personal usages of phones and laptops are allowed in class.
12. No Food or Drinks near computers!

ASKING QUESTIONS IN CLASS

- Will you repeat the last thing you said?
- Could you do another example?
- Could you go through that again, slower?
- Will you explain that a different way?
- Can you explain that word “blah” you said?
- Can you please speak a little slower?

Many students are uncomfortable speaking up in class. I encourage all students to get over their inhibitions and ask questions. Programming is hard, and not everyone learns the same way.

GETTING HELP OUTSIDE OF CLASS

Online

- Use the Canvas help discussion board. Asking a question publicly may help your peers as well.
- Email me at nathankoch@newschool.edu
- Processing Discourse - Processing
- Processing Discourse - P5js

In Person

- DT Study (walk-in only) - one-on-one tutoring from M - Sa, 12pm - 3pm @ D12
- University Learning Center - one-on-one tutoring @ 66 West 12th Street, 6th floor
- Office Hours. Part-time faculty in general don’t have set office hours. Feel free to email me and we can look for a time to set something up.. Overall my availability is limited, and the best time to set up a meeting is on D12 before class.

More on DT Study

Info and schedule: http://bit.ly/DTSTUDY

DTStudy is a program offered by BFA DT that offers study groups, workshops, and one-on-one tutoring for all students in BFA DT classes with paid student tutors chosen from BFA and MFA DT.

- Students can drop in and work on homework, ask questions, and get 1-on-1 help.
- Students can get support on technical topics including: Processing, Unity, HTML/CSS, and physical computing.
- Students can also feedback on their projects, designs, concepts, and presentations.
- DT Study meets three times per week.
- Students can also schedule 1-on-1 session during DT Study sessions or at other times to fit their schedule.

DT Study is an important resource for this class - signing up for tutoring sessions should be your first act if you are concerned about falling behind or not understanding class material or homework as well as you would like.

STATEMENT FOR SAFER SPACE

In this class we make a commitment towards diversity by acknowledging the different identities and backgrounds we inhabit. A collaborative effort between the students and the teacher is needed for creating a supportive learning environment.

If a class member says that something you have said or shared with the group is offensive, remember this is a valuable opportunity for everyone present to grow and learn from one another with further discussion. All class members are encouraged to discuss such instances with the instructor so they can be addressed with greater care in the future.

Statement adopted from voidLab at https://github.com/voidlab/diversity-statement.

READINGS

REQUIRED

- Reas, Casey, and Chandler McWilliams. *Form + Code: in Design, Art, and Architecture*. New York, NY: Princeton Architectural Press, 2010. (Website with Code Examples)

RECOMMENDED

- Gross, Benedikt, Hartmut Bohnacker, Julia Laub, Claudius Lazzeroni, Joey Lee, Niels Poldervaart, and Marie Frohling. *Generative Design: Visualize, Program and Create with Javascript in p5.Js*. Hudson, NY: Princeton Architectural Press, 2018. (Website with Code Examples)
- Shiffman, Daniel. *The Nature of Code*. Self-published, 2012. (Website with Code Examples)

MATERIALS AND TOOLS

- A laptop running Mac or Windows.
- Processing (see https://processing.org for a download link.
- Some students may wish to experiment with additional hardware or software integrations, but these tools won't be required for class.

ATTENDANCE POLICY

Students are expected to be present and on time to class every day. Each unexcused absence after the second unexcused absence will result in a half-letter drop in your final grade (e.g. A- will become a B+). Three lateness will result in an unexcused absence.

We only meet once a week, which means new programming concept needs to be covered in every class. If you miss a class, it is your responsibility to catch up with weekly slideshows and homework. The digital syllabus on Canvas will be updated with links after every class. Please review them and reach out if you have questions.

COURSE SCHEDULE

Week 1 8/30 Introduction

- Class intro, including syllabus and expectations.
- What is code, what is programming, and what is creative coding?
- What is Processing and P5.js?
- setup() and draw()
- println(), console.log, code comments

Reading FORM+CODE Ch. 1
Assignment 1 Due 9/6

Week 2 9/6 Variables

- What is data?
- Data types
- Built-in variables
- User defined variables
- random( )
- Debugging with print( )
- Mouse input

Reading FORM+CODE Ch. 2
Assignment 2 Due 9/13

Week 3 9/13 Functions

- What is a function?
- System functions
- User defined functions
- Arguments and Parameters
- Functions and Return

Reading FORM+CODE Ch. 3
Assignment 3 Due 9/20

Week 4 9/20 Conditionals

- Intro to Conditional Statements

- Else and Else if, AND and OR
- Boolean Variables

Reading FORM+CODE Ch. 4
Assignment 4 Due 9/27

Week 5 9/27 Loops

- while / for Loops
- Gotchas with Loops
- Why loops?

Assignment 5 (due 10/11)

~~Week 6~~ ~~10/4~~ Family Weekend / NO CLASS

Week 7 10/11 Arrays

- What is an array and what is it for?
- Using arrays with loops
- random(), map(), dist() with loops and arrays

Reading FORM+CODE Ch. 5
Assignment 6 Due 10/18
Assign Midterm Project Due 11/1
Midterm Description Write one or two paragraphs describing your midterm project. Due 10/18.

Week 8 10/18 Classes & Objects I

- Classes and Objects
- Constructors, member variables (attributes), functions/methods
- Dot operator, this, new
- Bouncing ball (or walker or similar) as a class vs. as a collection of independent data

Assignment 7 Due 10/25

Week 9 10/25 Classes & Objects II

- More practice with classes and objects
- Using objects in arrays

No homework
Midterm Assignment Due 11/1

Week 10 11/1 Topic Synthesis I

Week 11 11/8 Topic Synthesis II

	Assignment 8	Due 11/15
	Reading	FORM+CODE Ch. 5
	Extra credit	Code Kitchen Traumagotchi with Lark VCR and Bail Bloc with Grayson Earle
Week 12	**11/15**	**Midterm Open Studio**
	Reading	FORM+CODE Ch. 6
	Assignment 9	Due 11/22
Week 13	**11/22**	**MIdterm Presentations**
~~**Week 14**~~	~~**11/28**~~	**Thanksgiving / NO CLASS**
Week 15	**12/6**	**Final Project Assignment / Open Studio**
Week 16	**12/13**	**Final Project Presentation**

GRADING AND EVALUATION

Attendance

This can only work negatively for your grade as described in the attendance policy.

Participation (including readings) 10%

Participation: Verbal, critical, and informed participation in class. This means being present and aware — ready to contribute in real-time during both reading discussions and critiques. Personal phone and laptop usages are unacceptable for this class.

Readings: For each assigned reading, write a 100+ word response that addresses it, and post it to the corresponding discussion board on Canvas. Responses are casual, and are intended to facilitate discussion with your classmates and generate assignment ideas. Grading on reading responses is based on if they are posted the day of class.

Weekly Assignments 50%

Homework will be assigned on a weekly basis with due dates and submission information posted on Canvas, will typically be an application of the week's in-class topic(s), and is 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 assessed based on if the assigned goals for the work are met, with a penalty for missing goals and tardiness. Homework can be turned in multiple times - it is better to make a second, late submission that is complete, than to leave an incomplete first submission alone. As every assignment cumulatively builds upon the previous week's material, I encourage you to avoid falling behind!

Midterm Project **25%**

The midterm will be an extended homework assignment that will let you use the coding fundamentals you've learned so far towards a game-oriented goal. We'll brainstorm prompts together in class prior to the midterm.

Final Project **15%**

The final project will be a freeform creative project leveraging your reading in Form + Code, and experience from the midterm. It's an opportunity to use those tools in a non-game context.

Extra Credit **(up to 5%)**

Visit the Code Kitchen series to earn extra credit that will be added to your final grade. Other opportunities for extra credit may turn up throughout the semester. In general, extra credit involves both going to something and writing about it on the Canvas discussion board.

NOTE ON PLAGIARISM: *Any work that uses code not written by the student or supplied as sample code by the instructor* ***must*** *be cited with a comment stating the source.*

GRADING SCALE

97-100 = A+	93-96 = A	90-92 = A-
87-89 = B+	83-86 = B	80-82 = B-
77-79 = C+	73-76 = C	70-73 = C-
67-69 = D+	60-66 = D	0-59 = F

A [4.0]
Work of exceptional quality, which often goes beyond the stated goals of the course

A- [3.7]
Work of very high quality

B+ [3.3]
Work of high quality that indicates higher than average abilities

B [3.0]
Very good work that satisfies the goals of the course

B- [2.7]
Good work

C+ [2.3]
Above-average work

C [2.0]
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]
Passing work but below good academic standing

D [1.0]
Below-average work that indicates a student does not fully understand the assignments;
Probation level though passing for credit

F [0.0]
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.

Grade of Z
This grade is to be assigned to students who have **never attended or stopped attending** classes. Exceptions can be made if the student has completed enough work to warrant a grade (including a failing grade), and arrangements have been made with the instructor(s) and the Dean's Office prior to grade submission. The Z grade does not calculate into the student's GPA.

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 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 Registrar's Office.

NEW SCHOOL RESOURCES

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

- The University (and associated) Libraries
- The University Learning Center
- University Disabilities Service

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.

COLLEGE, SCHOOL, PROGRAM AND CLASS POLICIES

A comprehensive overview of policy may be found under Policies: A to Z. Students are also encouraged to consult the Academic Catalog for Parsons.

CANVAS

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

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.

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.

We only meet once a week, which means new programming concept needs to be covered in every class. If you miss a class, it is **your responsibility** to catch up with weekly slideshows and homework. The digital syllabus on Canvas will be updated with links after every class. Please review them and reach out if you have questions.

ACTIVE PARTICIPATION AND ATTENDANCE

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.

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.

I will assess each student's performance against all of the assessment criteria in determining your final grade.

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 on the university website under Policies: A to Z. Resources regarding what plagiarism is and how to avoid it can be found on the Learning Center's website.

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.

INTELLECTUAL PROPERTY RIGHTS

The New School (the "university") seeks to encourage creativity and invention among its faculty members and students. In doing so, the University affirms its traditional commitment to the personal ownership by its faculty members and students of Intellectual Property Rights in works they create. The complete policy governing Intellectual Property Rights may be seen on the university website, on the Provost's page.