# Course Syllabus

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| Parsons The New School for Design |
| School of Art, Media and Technology |
| Computational Form |
| PSAM 5600 D, CRN 4704 (MFA) |
| PSAM 3060 D, CRN 6192 (BFA) |
| Spring 2017 |
| Fridays 3:50pm—6:30pm, 6 East 16th Street D1208 |

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## Course Description

Computer programming is a powerful tool for creating and manipulating form and has long been used to by artists, designers, and composers to explore new aesthetics. In this class, students will continue this tradition of experimentation by creating and processing images, animation, video, sound, and 3D forms completely with code. This class will build on existing programming skills by introducing a variety techniques, programming languages, and tools related to procedural generation. Topics will include: creating raster and vector images with javascript and p5.js, synthesizing audio in javascript, and using OpenSCAD to create models for 3D printing.

In this class we will make things that make things.

## Learning Outcomes

In this course students should:

* Develop their knowledge of fundamental programming concepts
* Learn and practice strategies for procedural generation
* Create projects using a variety of programming tools
* Work with version control software
* Practice design ideation techniques
* Explore a variety of media
* Problem solve with other students
* Build a foundation for using these skill in their future work

## Homework

Homework is the most important part of this class. This course involves a new way of thinking and multiple new tools and languages. To learn any language or tool, you must use it. The homework is where you will apply what we discuss discuss in class.

Each week you will create and post 5 sketches to the class sketch log. These sketches should be related to the current weeks theme. You are encouraged to also draw on themes from previous weeks. You must make an effort to post work each week, late work will not be accepted.

This assignment structure is meant to encourage experimentation and allow flexibility. In particular, this structure is intended to allow students adjust the technical difficulty of the class work to suit their skill level. Please speak with me if you have any concerns related to this.

## Class Sketch Log

Students will post their daily sketches to the class sketch blog. While students will retain the intellectual property rights to their work, they should be aware that the sketch blog is public and should be comfortable sharing images of their work publicly. In addition students are highly encouraged to share the source code to their projects. Please speak with me if you have any concerns related to this.

## Course Outline

The following outlines the main topics to be presented in each class. This may be adjusted during the semester.

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| --- | --- | --- | --- | --- |
| Week | Date | Topic | Tool | Notes |
| **Foundation** |  |  |  |  |
| 1 | Jan 27 | Tile Graphics | Paper | [class notes](#) |
| 2 | Feb 03 | Random Values | p5.js | [class notes](week_2) |
| 3 | Feb-10 | Parameters | p5.js | [class notes](#) |
| 4 | Feb-17 | Noise | p5.js | [class notes](#) |
| 5 | Feb-24 | Comp Form Strategies | p5.js | [class notes](#) |
|  |  |  |  |  |
| **Exploration** |  |  |  |  |
| 6 | Mar-03 | Generating Animation | p5.js | [class notes](#) |
| 7 | Mar-10 | Processing Pixels | p5.js | [class notes](#) |
| 8 | Mar-17 | Turtle Graphics | p5.js + custom | [class notes](#) |
|  | *Mar-24* | *Spring Break* |  |  |
| 9 | Mar-31 | Vector Data | paper.js | [class notes](#) |
| 10 | Apr-07 | Generating Text | js+html | [class notes](#) |
| 11 | Apr-14 | Generating Music | js+custom | [class notes](#) |
| 12 | Apr-21 | Generating 3D Forms | OpenSCAD | [class notes](#) |
| 13 | Apr-28 | Live Video + Sound | Vuo | [class notes](#) |
| 14 | May-05 | Interactive Comp Form | TBD | [class notes](#) |
| 15 | May-12 | TBD | TBD | [class notes](#) |

## Assessable Tasks

Students will complete weekly assignments to demonstrate understanding of course material. These assignments will be evaluated based on technical, conceptual, and aesthetic exploration. Student will participation in class lectures, activities, and workshops will also be reflected in their final grade.

### Grading

* 80% Weekly Sketch Posts
* 20% In-class Activities

Your weekly posts will be graded using the following rough guide. This assignment structure is meant to encourage experimentation. As a general rule, the number of sketches you post each week will primarily determine your grade for that week. Your weekly grade may be adjusted up or down if your posts demonstrate a particularly high or low amount of exploration. For example if all of your sketches in a given week are of low complexity and very similar, your grade will be reduced.

As a general guideline, spend between 1 and 2 hours per sketch.

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| Grade | Value | Note |
| F | 0 | Did not turn in. |
| D | 1 | 1 or 2 Posts, Incomplete |
| C | 2 | 3 Posts, Average Creative/Technical Exploration |
| B | 3 | 4 Posts, Good Creative/Technical Exploration |
| A | 4 | 5 Posts, Very Good Creative/Technical Exploration |
| A+ | 5 | 6 Posts, Extra Credit |

Note: Working at a steady pace is important for this class, but some flexibility is needed. Posting 6 high quality sketches in a week will earn extra credit point, which will partially offset a slow week.

### Undergraduate Grading

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| Grade | Points | Percents | Description |
| A | 4.0 | 96–100% | Work of exceptional quality, which often goes beyond the stated goals of the course |
| A- | 3.7 | 91–95% | Work of very high quality |
| B+ | 3.3 | 86–90% | Work of high quality that indicates substantially higher than average abilities |
| B | 3.0 | 81–85% | Very good work that satisfies the goals of the course |
| B- | 2.7 | 76–80% | Good work |
| C+ | 2.3 | 71–75% | Above-average work |
| C | 2.0 | 66–70% | Average work that indicates an understanding of the course material |
| C- | 1.7 | 61–65% | Passing work but below good academic standing |
| D | 1.0 | 46–60% | Below-average work that indicates a student does not fully understand the assignments. Probation level though passing for credit |
| F | 0.0 | 0–45% | Failure, no credit |

Satisfactory completion of a course is considered to be a grade of C or higher.

### Graduate Grading

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| --- | --- |
| Grade | Points |
| A | Work of exceptional quality |
| A- | Work of high quality |
| B+ | Very good work |
| B | Good work; satisfies course requirements |
| B- | Below-average work |
| C+ | Less than adequate work |
| C | Well below average work |
| C- | Poor work; lowest possible passing grade |
| F | Failure |
| GM | Grade missing for an individual |

Satisfactory completion of a course is considered to be a grade of B or higher.  
Grades of D are not used in graduate level courses.

### 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:

Undergraduate students: 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.

Graduate students: Work must be completed no later than one year following the end of the class. Grades of “I” not revised in the prescribed time will be recorded as a final grade of “WF” (for Parsons and Mannes graduate students) or “N” (for all other graduate students) by the Office of the Registrar. The grade of “N” does not affect the GPA but does indicate a permanent incomplete.

## Resubmitting Work

Because this class is structured around daily exploration, I will not be accepting resubmitted assignments.

## Extra Credit

Extra Credit will be given for formal contributions to the class. One way to contribute is to provide corrections, enhancements, or additions to the class materials and website. For example, spelling and grammar corrections submitted through a pull request will earn a small amount of credit. More credit can be earned by adding content to class notes or resource pages, authoring small tutorials that benefit the class, etc.

## Github

Each student must have a Github account. We will use Github to turn in and host assignments.

## Backups

Each student **must** keep backups of their daily sketches, including source code and images and be prepared to submit or re-submit this work at anytime. Data loss, even if due to a failure of a class resource or third party service will not be accepted as an excuse for missing work.

## Office Hours

By appointment. Email to arrange.

## Required Reading

Students will not need to purchase any readings for this class. Links to online articles will occasionally be provided.

## Textbook and Materials

There is no required textbook for this course. Please bring your laptop, a notebook, a sketchbook, and some pens and pencils to each class.

## Attendance

We only meet once per week, and new material will be introduced each week. I strongly discourage missing any classes. In accordance with Parson's attendance policy, if you miss three classes your grade will be reduced and you will likely be asked to withdraw from the class. This includes absences from the first class due to late enrollment. Two late arrivals or early departures will count as one absence. Inappropriate use of a laptop (e.g. browsing social media during critiques or lectures) may result in being marked as absent.

## Laptop Policy

We will spend a good amount of class time working together on coding projects. During work time, computers will be used. However, during a lecture, discussion or critique, computers must be closed or set to sleep. Note-taking can be done on paper. Nothing kills a conversation like a room full of people staring at screens.

## Plagiarism, Code, and Open-Source

Code reuse is a complex issue in computer programming. Looking at existing code is a key part of the programming process, especially while learning. You often learn best by modifying working examples rather than starting from scratch. We stand on the shoulders of giants; that is a key part of the open-source philosophy.

Copy+paste makes it easy to use other's code without fully understanding it. It is important when using example code that you take the time to read, study, and understand it. In many cases this process can begin with simply retyping code instead of pasting it.

In a professional environment, the best practice is often to reuse existing code as much as possible. When learning however, it is often best to do as much as possible from scratch.

With that in mind, you may use limited amounts of existing code in your homework. However, there is a very important caveat: any code you use, borrow, and/or modify must be labeled as such. If you study code closely but do not directly use any of it, you should still cite the code you studied in your own source. **Every time you use code you didn't write, document your use in your source code with a comment.** If your work uses someone else's code in a substantial way you should also cite the work when you post your work. You must include the name of the author (even if it is me or a student in this class), the source URL, and you must make clear which lines of code are not yours. If you fail to do this, you will fail the class. It is very, very easy to get this right, though, so if you take a moment's time to label your work correctly, you will not have a problem. Be diligent and honest.

## 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: <http://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.

# 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 the 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 by the instructor 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.

## Intellectual Property Rights

<http://www.newschool.edu/provost/accreditation-policies/>