

## Algorithmic Animation Syllabus for Fall 2013

### Parsons The New School for Design

School of Art, Media and Technology

Algorithmic Animation

PGTE 5532

Fall 2013

12:10-2:50 Room 1206

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### Course Description

This class will look at the fundamentals of animation and animated form through the lens of computation. Artists have always used different technology to animate - from early zoetropes to hand drawn etched film - and with programming, there is a new branch of a long tradition forming. We will focus on techniques for writing code to move objects in a compelling and life-like manner. For folks who are newer to code, this class will work as a gentle but serious introduction to the medium, for experts this will present new approaches and strategies for expression. In addition to looking at and working through code, we will be studying several pioneers of abstract animation, Norman McLaren, John Whitney, Oskar Fischinger, as well as modern day practitioners like Toshio Iwai and Masahiko Sato. Technically, the course will be taught using a series of code examples, tools and problems coded in openframeworks, a cross platform c++ toolkit for creative hacking. This is an advanced programming class, students should be very comfortable with reading and writing code.

### Course Outline

WEEK 1	8/27	Introduction, Syllabus Handed Out Linear Motion, animation fundamentals
WEEK 2	9/3	Vectors / acceleration
WEEK 3	9/10	Sin, Cosine, Oscillation, and trigonometric motion
WEEK 4	9/17	Recording motion over time, outputting animations
WEEK 5	9/24	Particle Systems
WEEK 6**	10/1	Mid Term
WEEK 7	10/8	Forces / flocking / stippling
WEEK 8	10/15	Optimizing
WEEK 9	10/22	Spring systems / attraction / repulsion
WEEK 10	10/29	Simple physics
WEEK 11	11/5	Other toolkits, integrating other code and tools into a workflow
WEEK 12	11/12	Flow fields, path following
WEEK 13	11/19	Networking, moving things remotely

WEEK 14	12/3	Final project workshop
WEEK 15	12/10	Final project presentations

### Learning Outcomes

By the successful completion of this course, students will be able to:

1. Be able to compile and run their own c++ programs in openFrameworks
2. Understand the basics of computer based motion
3. Have an understanding of how real world physics translate to computer simulations
4. Be comfortable talking about your work in front of other students

### Final Grade Calculation

5% involvement  
 10% attendance  
 50% daily homework  
 15% mid term  
 20% final project

### Materials and Supplies

A computer mac/pc/linux with which you can compile and run the free and open source openFrameworks platform

### Grading Standards

#### Graduate

A	Work of exceptional quality
A-	Work of high quality
B+	Very good work
B	Good work; satisfies course requirements
<i>Satisfactory completion of a course is considered to be a grade of B or higher.</i>	
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

*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 WF

The grade of WF is issued by an instructor to a student (all undergraduates and all graduate students) 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. The WF is equivalent to an F in calculating the grade point average (zero grade points), and no credit is awarded.

### **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:

**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.

### **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

Faculty members may fail any student who is absent for a significant portion of class time. A significant portion of class time is defined as three absences for classes that meet once per week and four absences for classes that meet two or more times per week. During intensive summer sessions a significant portion of class time is defined as two absences. Lateness or early departure from class may also translate into one full absence.

- Blackboard or Canvas

Use of Blackboard 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

Use of electronic devices (phones, tablets, laptops) 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

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.

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. 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.

- Student Disability Services (SDS)

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 meet with Jason Luchs in the Office of Student Disability Services, who will conduct an intake, and if appropriate, provide an academic accommodation notification letter to you to bring to me. SDS assists students with disabilities in need of academic and programmatic accommodations as required by the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Federal Rehabilitation Act of 1973. <http://www.newschool.edu/student-services/disability/>.