

Parsons School of Design
Design and Technology
Currents: Coding with Cinder
PSAM 5600 Section E CRN 4598
Spring Semester 2017
Wednesdays 7:00PM – 9:40PM

Instructors

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Course Description

This course will be based on Cinder, an open source creative coding library. Students will learn to code using C++ and Cinder in the context of developing interactive installations. Offering high performance and solid robustness, Cinder is widely used as the primary production platform in creative agencies for the development of interactive installations. Starting with a recap of object-oriented programming with C++, we will then explore Cinder's capability in domains like graphics, animation, audio, video, mathematics, and interactivity, at the same time getting familiar with the best practices of industrial-level creative coding. In the second half of the semester, students will consolidate their learning by implementing their own interactive installations in groups. Guest lectures will also be arranged to introduce the prototyping and production of real-world projects.

Learning Outcomes

By successfully finishing the course, students are expected to be able to

- Write efficient and robust interactive graphical applications using C++ and Cinder;
- Take advantage of available libraries and Cinder blocks;
- Design software architecture and development plan for sophisticated applications;
- Collaborate with other developers effectively using GitHub.

Assessable Tasks

Weekly Assignments	Assigned weekly during the first half of semester
Final Project	Due on last week of class

Final Grade Calculation

Attendance/Participation	20%
Weekly Assignments	40%
Final Project	40%

Course Outline

WEEK 1	01/25	Course introduction / introduction to Cinder
WEEK 2	02/01	C++ fundamentals recap / texture and shader
WEEK 3	02/08	Object oriented programming / particle system
WEEK 4	02/15	Memory management / particle system revisited
WEEK 5	02/22	Animation with timeline / version control with GitHub
WEEK 6	03/01	Video & audio playback / input & output
WEEK 7	03/08	Building / debugging / libraries / Cinder blocks
WEEK 8	03/15	Guest lecture 1 (Ritesh Lala from Potion)
WEEK 9	03/22	<Spring break / no class>
WEEK 10	03/29	poScene scene graph / final project kick-off
WEEK 11	04/05	poScene components / touch event handling
WEEK 12	04/12	poScene components continued / software architecture & project management
WEEK 13	04/19	Final project workshop 1
WEEK 14	04/26	Guest lecture 2 (Ben Bojko from Bluecadet)
WEEK 15	05/03	Final project workshop 2
WEEK 16	05/10	Final project presentation

Recommended Readings

- Official Cinder guides: <https://libcinder.org/docs/guides/index.html>
- *Cinder Creative Coding Cookbook* by Rui Madeira, Dawid Gorny
- *Cinder - Begin Creative Coding* by Krisjanis Rijnieks
- *C++ Primer* by Stanley B. Lippman, Josée Lajoie, Barbara E. Moo
- *Accelerated C++* by Andrew Koenig, Barbara E. Moo
- *Thinking in C++* by Bruce Eckel
- *Effective C++* by Scott Meyers
- *Effective Modern C++* by Scott Meyers
- *Game Programming Patterns* by Robert Nystrom
- *Design Patterns: Elements of Reusable Object-Oriented Software* by Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides
- *The Nature of Code* by Daniel Shiffman
- *The Book of Shaders* by Patricio Gonzalez Vivo, Jen Lowe

Materials and Supplies

Please have these resources prepared in order to accomplish course assignments/projects:

- A laptop computer running either macOS or Windows.
- Install Xcode 8 / Visual Studio Community 2015.

Resources

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

- The University (and associated) Libraries: <http://library.newsouth.edu>
- The University Learning Center: <http://www.newsouth.edu/learning-center>
- University Disabilities Service: www.newsouth.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

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| 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 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 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

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.

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