

Parsons School for Design
Design and Technology
Creative Coding: Large Systems

PGTE5566 CRN 5046

Spring 2016

Tuesdays 7:00pm - 9:40pm

1/26/2016 - 5/10/2016

6 East 16th St

Room 1200

Ramsey Nasser

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<http://nas.sr/teaching/2016/large-systems/>

Available one hour before class or by appointment

Course Description

This class will cover turning sketches and prototypes into the large scale interconnected systems found in practice. Focus will be placed on networking, protocols like OSC, architectures like REST, formats like JSON, and other technologies designed to make disparate systems communicate.

Course Outline

Assignments will be posted on the class site

WEEK 1	Jan 26	Introduction, "What is a Large System?"
WEEK 2	Feb 2	Networks: How Machines Communicate <i>Stacked Architectures</i>
WEEK 3	Feb 9	Networks: Overview of Protocols and Formats <i>JSON, OSC, XML</i>
WEEK 4	Feb 16	Networks: APIs and Interfaces <i>REST, Falcor, GraphQL</i>
WEEK 5	Feb 23	Computers: Communication <i>Sockets, TCP, UDP, Libraries</i>
WEEK 6	Mar 1	Computers: Serialization
WEEK 7	Mar 8	Midterm
WEEK 8	Mar 15	OUT OF TOWN
WEEK 9	Mar 22	JavaScript: Communication <i>node.js, WebSockets</i>
WEEK 10	Mar 29	JavaScript: Serialization
WEEK 11	Apr 5	Cloud: Deployment <i>Amazon AWS</i>
WEEK 12	Apr 12	Cloud: Databases
WEEK 13	Apr 19	Hardware: Communication
WEEK 14	Apr 26	Hardware: Serialization

WEEK 15	May 3	Final Projects
WEEK 16	May 10	Final Presentations Last Class

Learning Outcomes

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

1. Design and implement systems that coordinate code running in parallel
2. Competently troubleshoot problems that arise from such systems
3. Interact with existing Large Systems, such as Web APIs and other servers
4. Reason about the political implications of the tools they build on

Assessable Tasks

Homework will be assigned as the class progresses

Final Grade Calculation

In class participation	25%
Homework	25%
Midterm	25%
Final	25%
TOTAL	100%

Recommended Reading

Beneath the Cloud Special Report on The Atlantic

<http://www.theatlantic.com/special-report/beneath-the-cloud/>

Web Design: The First 100 Years Maciej Cegłowski

http://idlewords.com/talks/web_design_first_100_years.htm

Architectural Styles and the Design of Network-based Software Architectures Roy Fielding

https://www.ics.uci.edu/~fielding/pubs/dissertation/fielding_dissertation.pdf

Making things Talk Tom Igoe

<http://www.amazon.com/dp/0596510519>

Resources

Materials and Supplies

You will need a laptop running modern operating system. Additional software will be downloaded as the course progresses. You will be required to sign up for hosted services that are free, though the cost

Grading Standards

Graduate

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

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 "N" by the Registrar's Office.

Divisional, Program and Class Policies

- Fun

It is a requirement of the class that you have fun making your projects. If you're not having fun, then you're either making the wrong projects or making them in a way that doesn't suit your natural workflow. Talk to me if any of your work feels like a drag and we will figure something out. I am serious about this.

- 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.

Members of the faculty are expected to provide syllabi in which course objectives and assessment criteria are described, in writing, at the beginning of the term. The syllabus should also articulate how attendance is assessed with respect to active participation.

At Parsons, attendance and lateness are assessed as of the first day of classes. Students who register after a class has begun are responsible for any missed assignments and coursework. Students who must miss a class session should notify the instructor and arrange to make up any missed work as soon as possible. A student who anticipates an extended absence should immediately inform the faculty and his or her program advisor. Advance approval for an extended absence is required to ensure successful completion of the course. Withdrawal from the course may be recommended if the proposed absence would compromise a student's ability to meet course objectives.

Finally, faculty are asked to notify the student's advisor for any student who misses two consecutive class sessions without explanation or who otherwise miss a significant portion of class time. Following two absences, students may be asked to speak with their advisor to review any impediments to their successful performance in class and, if so, to provide confirmation to the faculty member that such a conversation took place.

Religious Absences and Equivalent Opportunity

Pursuant to Section 224-a of the New York State Education Laws, any student who is absent from school because of his or her religious beliefs will be given an equivalent opportunity to register for classes or make up any examination, study, or work requirements which he or she may have missed because of such absence on any particular day or days. The student must inform the instructor at the beginning of the course of any anticipated absences due to religious observance.

- Canvas

We will not be using Canvas in this class.

- 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, I will email you with further details.

- 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

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/>.