CURRENTS: BUILDING WORLDS (PSAM 5600 C)

Robert Yang <yangr@newschool.edu>, office hours by appointment.
Spring 2014, R 7:00 - 9:40 PM, Room #1205 (6 E. 16th St.)

This course combines practical instruction in code, 3D modeling/animation, and iterative engineering processes, with theoretical inquiry into the politics of code and virtual embodiment. If good code is written for other coders to read, then is code a political text? (Yes.) How do we represent a 3D space, a world, in a computer? How do we engineer simulations? How do we world new worlds?

TOOLS AND MATERIALS

(a) Windows / OSX laptop, (b) Unity, free edition, (c) SourceTree, also free,
(d) Autodesk Maya, free student edition, (e) Adobe Photoshop, somehow.

LEARNING GOALS

- basic understanding of code, syntax, scopes, and commonly used code patterns
- understand code as a political text situated within the history of computing
- utilize asset-based workflows common to game engines / frameworks
- master basic 3D vector math, navigating 3D space, and manipulating 3D objects
- demonstrate basic UI / UX principles in an interactive screen-based context
- demonstrate troubleshooting / debugging strategies for engineering projects

ASSIGNMENTS

Check your e-mail regularly; your homework may differ from the printed schedule.

WEEKLY PROJECT: an exercise to help you learn a technique or pattern
MIDTERM: world as simulation; a trigger + a virtual Rube Goldberg machine
FINAL: world as performance; code + 3D = interactive simulation
(the final project will also have a SECRET THEME!...)

CLASS WEBSITE / GITHUB REPO / HOW TO TURN IN PROJECTS

1) Go to the class repo at github.com/radiatoryang/buildingworlds_spring2014/
2) Click "Wiki" on the sidebar and follow the instructions.

ATTENDANCE

REMINDER: You are in college and you are an adult.
1st unexcused absence: no penalty
every unexcused absence after: 1 level drop of grade (e.g. from A to B)

GROUND RULES: be an adult, don't be a jerk; step up, step down; be excellent to each other

COURSE STRUCTURE (* subject to change during semester)

#	DATE	CLASS AGENDA (subject to change)	HOMEWORK DUE WEEK AFTER
1	1/30	Welcome. Intro to Unity. 3D space. Lights. Colors. My first build. Intro to Maya.	- Your apartment, model your bed. - Read 10PRINT ch. 10
2	2/6	Intro to code, Hello World. Vars / functions. 10PRINT port. Poetry gen. Arrays. Git intro.	- Terrain, skybox, font, statue, music - Read 10PRINT ch. 15, 25
3	2/13	If Input( ) do { scopes; }. Guessing games. Public variables. Explorable small worlds.	- Expand small world, add gate. - Read 10PRINT ch. 20, 35
4	2/20	Git fork and clone. Intro to vector math. Porting Blockly to Unity. Simple Maya UVs.	- Finish Blockly 3D port + character - Do vector worksheet.
5	2/27	Crowd simulation; lists, instantiation, for ( ) Raycasts are really important, okay??	- Model + add new char. to crowd - Do code worksheet.
6	3/6	Physics, physics materials, rigidbodies. **MIDTERM: Start midterm machines.**	- Model shape with a mesh collider - Sketch machine and prototype it
7	3/13	Pseudorandom? Coding with triggers. **MIDTERM: Progress check**	- Add a trigger to your machine. - Finish your midterm machine.
8	3/20	**NO CLASS (GAME DEVELOPERS CONF)** **MIDTERM: Due. (project reviews)** Watch: "Being in the World"	- Read Game Feel, ch. 1 + 12 - Watch "Being in the World" - Show 3 things w/ interesting "feel"
	3/27	**NO CLASS (SPRING BREAK)**	
9	4/3	Feel tune, juiciness, coroutines, screenshake FINAL: Pitch workshop, co-working groups	- Slides: 3 project ideas / concepts - Do feasibility studies for each idea
10	4/10	Fish Lab: bones, weights, basic Mecanim FINAL: Project workshop.	- Work on an input prototype - Shapes: beautiful, useful, influential
11	4/17	Water Lab: mesh deform, using shaders. FINAL: Project workshop	- Work on a systems prototype - Read "Crime Algo in SimCity"
12	4/24	Tree Lab: mesh gen, recursion and fractals. FINAL: Project presentations.	- Iterate on input and systems - Read Thinking in Systems, ch. ____
13	5/1	Mountain Lab: interactive deformation. FINAL: Project workshop.	- Iterate on entire user experience - Read "Programmable Gfx Pipeline"
14	5/8	Snow Lab: coding a basic triplanar shader FINAL: Project workshop.	- Finish your project, make it work! - Prepare project documentation.
15	5/15	**FINAL: Presentations** and pizza. Nature of code. Virtual reality demos.	- Upload / publish your project.

GRADING

Participation / Attendance	25%	*do you show up? are you engaged?*
Weekly Homework	25%	*do you turn-in assignments on-time?*
Midterm Exam	20%	*did you practice iterative development?*
Final Project / Presentation	30%	*did you iterate + develop your project?*
TOTAL	100%	

RUBRIC

F; Did not submit work, or grossly problematic, or with little or no demonstrated effort.
D; Met minimum requirements, but shows minimal engagement with class material in its execution.
C; Competent work, but shows little critical engagement or attempt at novel contexts / arrangement.
B; Very good work of some complexity, clear in its methods, distinct in its execution with minor errors.
A; Exceptionally good work, very well organized, demonstrates substantial reflection and effort.

I; Incomplete. Deferment of grade, delayed for unavoidable / legitimate reasons. Given only with the written approval of the instructor and the program director. The Request for an Incomplete Grade form must be filled out by the student and instructor prior to the end of the semester.
Late work: Must be turned-in the week after, at the latest. Grade will drop one letter. No feedback given. For undergraduate students, if a grade of incomplete is approved, outstanding work must be submitted by the seventh week of the following Fall semester (for Spring and Summer courses) or by the seventh week of the following Spring semester (for Fall courses). Otherwise, a grade of I will automatically convert to a permanent unofficial withdrawal (WF) after four weeks. For graduate students, the deadline for completion of an incomplete is one year though a shorter period may be imposed at the discretion of the instructor.

OTHER POLICIES

E-Mail
Allow at least a day for a response, though I will sometimes reply more quickly. In general, I am here to help you - within reason. I am happy to talk you through a process, but **I will never write your code for you or do your projects for you.**

Office Hours
By appointment, just e-mail me or talk to me after class to setup a time. I'm happy to answer short / small questions, before and after class too, time permitting.

Responsibility
Students are responsible for all assignments, even if they are absent. Late papers, failure to complete the readings assigned for class discussion, and lack of preparedness for in-class discussions and presentations will jeopardize your successful completion of this course.

Participation
Class participation is an essential part of class and includes: keeping up with reading, 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 three absences for classes that meet once per week and four absences for classes that meet two+ times per week. Lateness or early departure may also translate into one full absence.

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.

Academic Integrity
This is the university's Statement on Academic Integrity: "Plagiarism and cheating of any kind in the course of academic work will not be tolerated. Academic honesty 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 instructors and other students). These standards of academic honesty and citation of sources apply to all forms of academic work (examinations, essays, computer work, art and design work, oral presentations, and other projects)."

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. Every student at Parsons signs an Academic Integrity Statement as a part of the registration process. Thus, you are held responsible for being familiar with, understanding, adhering to and upholding the spirit and standards of academic integrity as set forth by the Parsons Student Handbook.

Guidelines for Written Assignments
Plagiarism is the use of another person's words or ideas in any academic work using books, journals, internet postings, or other student papers without proper acknowledgment. For further information on proper acknowledgment and plagiarism, including expectations for paraphrasing source material and proper forms of citation in research and writing, students should consult the Chicago Manual of Style (cf. Turabian, 6th edition). The University Writing Center also provides useful on-line resources to help students understand and avoid plagiarism. See http://www.newschool.edu/admin/writingcenter/
Students must receive prior permission from instructors to submit the same or substantially overlapping material for two different assignments. Submission of the same work for two assignments without the prior permission of instructors is plagiarism.

Guidelines for Studio Assignments
Work from other visual sources may be imitated or incorporated into studio work if the fact of imitation or incorporation and the identity of the original source are properly acknowledged. There must be no intent to deceive; the work must make clear that it emulates or comments on the source as a source. Referencing a style or concept in otherwise original work does not constitute plagiarism. The originality of studio work that presents itself as "in the manner of" or as playing with "variations on" a particular source should be evaluated by the individual faculty member in the context of a critique.
Incorporating ready-made materials into studio work as in a collage, synthesized photograph or paste-up is not plagiarism in the educational context. In the commercial world, however, such appropriation is prohibited by copyright laws and may result in legal consequences.

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 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. At that point I will review the letter with you and discuss these accommodations in relation to this course. Mr. Luchs' office is located in 79 Fifth Avenue, 5th floor. His direct line is (212) 229-5626 x3135. You may also access more information through the University's web site at http://www.newschool.edu/studentservices/disability