Game Development: Studio (OART-UT 1612)

INSTRUCTOR: Robert Yang <ry14@nyu.edu> // office hours by appointment
TA: Diego Garcia <deg346@nyu.edu>

2 Metrotech, RM #825. Downtown Brooklyn. Mondays and Wednesdays, 12:30 - 3:15 PM

DESCRIPTION

This course reflects the various skills and disciplines that are brought together in modern game development: game design, programming, visual art, animation, sound design, and writing. Classroom lectures and lab time will all be used to bring these different educational vectors together into a coherent whole; the workshop will be organized around a single, long-term, hands-on, game creation project. At the completion of this course, the student will be able to:

1) Describe typical work practice in game development.
2) Demonstrate competency through actual implementation of code and assets.
3) Work with a game engine, and understand the basics of how to build a game in the engine.

YOU WILL NEED:

- **A laptop computer!** NOT a tablet, NOT an iPhone... but a laptop, PC or Mac.
- **Unity3D**, free indie version. ("Pro" is okay too, but not necessary at all)
- **Autodesk Maya** (Autodesk offers free 3 year licenses to students)
- **Sourcetree** (or you can use whichever Git client you prefer, but this is what I'll teach)

WE WILL READ: (I'll provide PDF excerpts, but you can buy these books if you like.)

- **10PRINT,** by Nick Montfort, Ian Bogost, et al. *The philosophy of code and expression.*
- **Game Feel,** by Steve Swink. *The art and science of game input and perception.*

LIST OF SAFE AND APPROVED ROGUELIKES: (You will pick and play at least 2.)

- **Real-time action:** Spelunky, Risk of Rain, Nuclear Throne, Binding of Issac, Eldritch, GIRP
- **Turn-based top-down:** 868-HACK, Cardinal Quest 2, Desktop Dungeons, NetHack, Hoplite
- **Management simulation:** Don't Starve, FTL, XCOM, Dwarf Fortress, Oregon Trail

LEARNING GOALS: "learn everything"

- Unity editor interface and common workflows.
- Iterative prototyping processes and troubleshooting, isolating bugs and problems.
- C# syntax, input and control structures (if / else / for / while), basic code patterns.
- Conceptualizing 3D space / raycasting / basic vector math.
- Maya, basic polygonal modeling / animation workflows and considerations.
- Audacity, basic sound editing / synthesis workflows, sound design considerations

CLASS ASSIGNMENTS

- WEEKLY HOMEWORK / LABS. Do them.
  - Check your e-mail.
- MIDTERM: slow jam in groups
- FINAL: a polished roguelike-like

CLASS WEBSITE: github.com/radiatoryang/nyu_studio_spring2014/

To turn-in homework, click "Wiki" on the sidebar, and follow instructions.

ATTENDANCE: We're in Brooklyn. *Deal with it.* 2+ unexcused absences will lower your grade.
4 unexcused absences (= 2 weeks of class?!) will be automatic failure.

	MONDAY	WEDNESDAY	HOMEWORK (DUE NEXT WEEK, MON!)
1 Jan 27	Welcome / intro to Unity 3D space, colors, tex, lights. My first build.	Intro to code, Hello World Variables and functions. Poetry generator. GitHub.	- Add more poetry + terrain + skybox + push to GitHub - Read 10PRINT, Ch. 10, 20
2 Feb 3	If (Input( )) do { scopes } LAB: Guessing game. LAB: Text adventure.	Git troubles, fork + clone. Intro to vector math. LAB: Blockly 3D port.	- Do vector worksheet - Finish Blockly port - Read 10PRINT, ch 15, 25
3 Feb 10	GetComponent<> is great Sounds, 3D text, fonts LAB: port 10PRINT	Lerp slerp sine. Prefabs. Maya: intro to modeling. Blockly > Theseus art pass	- Do code worksheet - Art pass on Blockly port. - Read 10PRINT, ch 35
4 Feb 17	**PRESIDENTS DAY NO CLASS!**	Collider, trigger, rigidbody, physics mat, mesh collider	- Finish Goldberg machine. - Read 10PRINT, Ch. 40
5 Feb 24	Instantiate( ) for( ) crowds **LAB: Raycasting is really really important, srsly.**	Maya: simple characters. Legacy animation systems. Basic UV color fills	- Add character to crowd sim - Watch Brough's talk. - Play a roguelike from list.
6 Mar 3	Procedural worlds **PROJECT: start slow jam** Form groups, setup Trello.	Agile, scrum, pomodoro. **PROJECT: workshop** Collaborating with Git.	**- Project: playable proto** - Update group GitHub repo - Update group Trello
7 Mar 10	**PROJECT: playtest proto** Testing, feedback, critique	**PROJECT: end of jam** Post-partum. Re-assess.	- Write a 1 page GDD + slides on a roguelike from list.
8 Mar 17	**SPRING BREAK / GDC NO CLASS**	**SPRING BREAK / GDC NO CLASS**	**- Project: GDD / slides.** - Read Game Feel, Ch. 1
9 Mar 24	PROJECT: pitch, coordinate Coroutines and timing Juicy screen shake	Maya: rigged characters Maya: inverse kinematics Mecanim anim controllers	- Do code worksheet **- Project: Input proto** - Read Game Feel, ch. 13
10 Mar 31	Game manager singletons. Using CSV / Google Docs.	AI theory, state machines Pathfinding with NavMesh	**- Project: Systems proto** - Do code worksheet
11 Apr 7	Testing, feedback, critique. LAB: Analytics, heatmaps	**(TA LECTURE?)** PROJECT: Code review.	**- Project: Level design pass** - 100 words on other project
12 Apr 14	Shaders: specular, bump LAB: making water.	Menus, splash screens InControl, gamepad input	**- Project: Alpha (buggy?)** - Read Game Feel, ch 9
13 Apr 21	Cross-platform build test Bug / issue trackers	Let's Play: Gone Home PROJECT: Code review.	**- Project: Beta (stable)** - Write a feel breakdown
14 Apr 28	How to release a game PressKit( ), game website	How to talk to a journalist Making trailers	**- Project: PUBLIC RELEASE** - Put a trailer on YouTube
15 May 5	Conferences and festivals **START LUDUM DARE**	**END LUDUM DARE** Presentations, Pizza, VR.	**- Project: peer reviews** - extra credit: write tutorial

PROJECT THEME: THE ROGUELIKE

For our purposes, a roguelike is a game with procedurally generated levels and permadeath.

- You must maintain a group Trello to manage tasks and issues. **I will grade it.**
- If on a private Git repository, you must give me access to browse and clone it, **to grade it.**
- You must support keyboard or mouse, as well as gamepads. (Use "InControl")
- You must release Windows, OSX, and WebPlayer builds, publicly, by Monday of Week 15.
- You must build some sort of web presence for your game, and you must make a trailer.

ASSESSMENT

Students will be graded primarily on demonstrated process and technique. Students will be given grades based on a 100-point scale. Each assignment will be graded on a point scale, and these points will be added up to determine the final grade, according to the following:

98-100 A+
92-97 A
90-91 A-
88-89 B+
82-87 B etc.

The following are the components of the grade:

Attendance & participation	25
Homework	25
Midterm	15
Final	35
TOTAL	= 100

Attendance & Participation

The attendance and participation portion of your grade is based on the following:

- Your attendance in class and tardiness. Missing more than 2 classes will hurt your grade.
- Participation in group discussions and critiques
- Peer grades and participation in writing group evaluations

Private peer grades

You'll give a grade to each member of your group. You can add a short explanation if you like, and you must add some explanation when giving a grade of C or below.

A = Fully participated and contributed ideas - hard worker and great teammate
B = Generally was present during the process - no complaints
C = Attended some meetings, but could have contributed more
D = Was absent from most or all meetings, or counter-productive in some way
F = Completely absent from the process

Group evaluations

Students will also write an evaluation of each team member at the end of the class. These evaluations will be sent to all group members and to the instructor. They must include:

a) Two positive observations. Particular skills, behaviors, decisions, or other ways in which a member made a positive contribution.

b) Two areas for improvement. At least two observations that point out how the team member can change their working style, collaborative approach, or other aspects of their behavior to improve the project and the team dynamic.

STATEMENT OF ACADEMIC INTEGRITY

Plagiarism is presenting someone else's work as though it were your own. More specifically, plagiarism is to present as your own: A sequence of words quoted without quotation marks from another writer or a paraphrased passage from another writer's work or facts, ideas or images composed by someone else.

Statement of Principle

The core of the educational experience at the Tisch School of the Arts is the creation of original academic and artistic work by students for the critical review of faculty members. It is therefore of the utmost importance that students at all times provide their instructors with an accurate sense of their current abilities and knowledge in order to receive appropriate constructive criticism and advice. Any attempt to evade that essential, transparent transaction between instructor and student through plagiarism or cheating is educationally self-defeating and a grave violation of Tisch School of the Arts community standards. For all the details on plagiarism, please refer to page 10 of the Tisch School of the Arts, Policies and Procedures Handbook 2013-2014, which can be found online at: http://students.tisch.nyu.edu/page/home.html

ACCESSIBILITY

Academic accommodations are available for students with documented disabilities. Please contact the Moses Center for Students with Disabilities at 212-998-4980 for further information.