

## INTERMEDIATE GAME DEVELOPMENT (GAMES-UT 121-001 / 121-002)

FALL 2017

INSTRUCTOR: Robert Yang <[ry14@nyu.edu](mailto:ry14@nyu.edu)>, office hours: MoTu 1-2 PM

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TuTh (001) 9:30-12:15AM, (002) 2:00-4:45PM 2 Metrotech (MAGNET) ROOM 825

This course reflects the various skills and disciplines that are brought together in modern game development: game design, programming, asset creation, and critical analysis. 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.

MAIN COURSE TOOLS: *(all software is free / or has free student versions)*

(1) A laptop (2) Unity, free (3) Maya 2017 (4) Substance Painter (5) GitKraken

RECOMMENDED COURSE TEXTS: *(all readings will be free / provided)*

(1) 10PRINT, by Nick Montfort, et al.

### LEARNING GOALS:

- Iterative prototyping processes and troubleshooting, isolating bugs and problems.
- Code literacy, input and control structures (if / else / for / while) + entity-component model
- Conceptualizing 3D space / raycasting / basic vector math, movement and collisions.
- Basic 3D polygon modeling and texturing workflows, and basic asset considerations.

ATTENDANCE: you must send us a message **BEFORE** class to be excused

3+ unexcused absences lowers grade

2 tardies = 1 absence 15+ min late = 1 tardy

CLASS WEBSITE: [github.com/radiatoryang/fall2017\\_intermediate](https://github.com/radiatoryang/fall2017_intermediate)

To turn-in homework, click "Wiki" in the navigation bar, and follow instructions.

### WEEKLY ASSIGNMENTS:

- All weekly development assignments must be uploaded as a Unity WebGL + Git repo (after we learn GitKraken), and linked on the class wiki in the correct section BEFORE CLASS.
- Weekly devlog responses to a prompt on the Github wiki.

### MIDTERM PROJECT: INDIVIDUAL

A short autobiographical "self-portrait" game, with 1+ obstacle / gate / challenge / activity. Practice making a small simple 3D game by yourself.

### FINAL PROJECT: GROUP

We will work in groups of 3-4 students to study and clone a popular game. (There will be a list of possible games to choose from.)

- you must *\*each\** do at least one CODE task, MAYA / PAINTER task, and a UNITY task

SCHEDULE (subject to change)

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- 9/4            01: introductions, what is game dev, editor interface, WebGL exporting**  
Homework: devlog “The Door Problem”, build a door scene, do 1<sup>st</sup> code handout, install Maya
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- 9/11            02: vector math pair-programming, review how to code, intro to Maya**  
Homework: devlog 10PRINT ch. 10, do 2<sup>nd</sup> code handout, build a 2.5D treasure hunt game
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- 9/18            03: more Maya, intro to 3D physics, using GitKraken, optimizing WebGL**  
Homework: devlog 10PRINT ch. 25, build a Rube Goldberg machine + custom models
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- 9/25            04: coding with physics, using triggers, !!! LAB: BEGIN MIDTERM !!!**  
Homework: devlog midterm idea, make first prototype
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- 10/2            05: playtest midterms, raycasting and instantiation**  
Homework: devlog midterm progress, iterate on your midterm project
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- 10/9            06: playtest midterms, intro to 3D painting in Substance Painter**  
Homework: devlog midterm progress, iterate on your midterm project
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- 10/16           07: playtest midterms, sound playback, using the Timeline**  
Homework: devlog midterm post-mortem, **finish and publish your midterm project**
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- 10/23           08: debrief midterms, intro to procedural generation / for / while**  
Homework: devlog “What Do Prototypes Prototype”, make a maze generator tech demo
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- 10/30           09: how to architect projects, GitKraken branching !!! BEGIN FINAL PROJECT !!!**  
Homework: devlog final project plan, prototype main game systems
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- 11/6            10: collaborating on GitHub, intro to coroutines, code review**  
Homework: devlog final progress, iterate on final project
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- 11/13           11: in-class playtest, intro to animation in Maya / Mecanim in Unity**  
Homework: devlog final progress, iterate on final project
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- 11/20           [NO CLASS 11/22-11/24, THANKSGIVING HOLIDAY]**  
**12: implementing game feel and “juiciness”, code review**  
Homework: devlog final progress, iterate on final project
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- 11/27           13: in-class playtest, what a GPU does + intro to shaders**  
Homework: devlog final progress, iterate on final project
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- 12/4            14: in-class playtest, intro to dynamic mesh deformation, code review**  
Homework: devlog final progress, iterate on final project
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- 12/11           15: last in-class playtest, deliverables due next week on December 18**

## 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 20

Final 30

TOTAL = 100

## ATTENDANCE AND PARTICIPATION

- **Attending and arriving on time to all class sessions is required and expected.** This includes all labs, recitations, and critiques. If you will be missing a class due to illness, or unavoidable personal circumstances, you must notify your professor in advance via email for the absence to be excused. Unexcused absences and being late to class will lower your final grade. Three unexcused absences lower your final grade by a letter. Each subsequent unexcused absence will lower another letter grade. Two tardies will count as one unexcused absence. Arriving more than 15 minutes late to class will also count as an unexcused absence.
- Participation in group discussions and critiques
- Whether you're engaging with the material during class, vs. checking Facebook or playing Hearthstone, etc... generally, whether it seems like "you're trying" and putting time / effort into this.

## 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, which can be found online at:

<http://students.tisch.nyu.edu/page/home.html>

## TAKE CARE OF YOURSELF / ACCESSIBILITY

Your health and safety are a priority at NYU. If you experience any health or mental health issues during this course, we encourage you to utilize the support services of the 24/7 NYU Wellness Exchange 212-443-9999. All students who may require an academic accommodation due to a qualified disability, physical or mental, please register with the Moses Center 212-998-4980. Please let your instructor know if you need help connecting to these resources.

New York University  
Tisch School of the Arts  
Course Syllabus  
Office of Special Programs