

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

SPRING 2016

INSTRUCTOR: Robert Yang <[ry14@nyu.edu](mailto:ry14@nyu.edu)>, office hours by appointment

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TuTh 2:00-4:45 PM 2 Metrotech (MAGNET) ROOM 805

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 version. (3) Autodesk Maya 2016 (4) SourceTree.

MAIN COURSE TEXTS:

(1) 10PRINT, by Nick Montfort, et al. (2) Jagged Alliance 2, by Darius Kazemi.

LEARNING GOALS: *(practice design, code, and asset creation, as a unified discipline)*

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

ATTENDANCE: 3+ unexcused absences lowers grade, **e-mail me before class to be excused**

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

CLASS WEBSITE: **[github.com/radiatoryang/spring2016\\_gamedev](https://github.com/radiatoryang/spring2016_gamedev)**

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

WEEKLY ASSIGNMENTS:

- All interactive assignments must be uploaded as a Unity WebGL + Git repo, and linked on the class wiki in the correct section BEFORE CLASS.
- Weekly journal responses to a prompt on the Github wiki.

MIDTERM PROJECT: INDIVIDUAL

A short autobiographical ("self-portrait") game, with 1+ obstacle / gate / challenge / activity

- you MUST upload the project folder to a public GitHub repository
- you are BANNED from using the Terrain tool

FINAL PROJECT: GROUP

We will work in groups of 3-4 students to build small games with a secret theme.

- you MUST upload the project folder to a public GitHub repository
- you MUST release your playable game to the public in some form
- you MUST have a 1 paragraph blurb, 3 screenshots, etc. on a webpage
- you MUST \*EACH\* complete at least one CODE task, ASSET task, and DESIGN task

SCHEDULE (subject to change)

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- 1/26      WEEK 1: introductions, what is game dev, editor interface, exporting**  
Homework: read "The Door Problem" by Liz England; build a poetic landscape
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- 2/2      WEEK 2: intro to code, variables, if / else, basic Unity UI**  
Homework: read 10PRINT ch. 10, do code worksheets, build a text adventure world
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- 2/9      WEEK 3: intro to vector math, inputs, intro to Maya + how to Git**  
Homework: read 10PRINT ch. 15, do vector worksheets, build a 2.5D treasure hunt game
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- 2/16      WEEK 4: intro to PhysX physics and prototyping**  
Homework: read 10PRINT ch. 25, build a Rube Goldberg machine + custom models
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- 2/23      WEEK 5: physics applications, !!! BEGIN MIDTERM PROJECTS !!!**  
Homework: write user stories, prototype working player input and 3D world blackout
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- 3/1      WEEK 6: intro to 3D painting in Maya, scripting game logic / singletons**  
Homework: write new user stories, finish your midterm project
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- 3/8      WEEK 7: intro to proc gen / instantiate !!! MIDTERM DUE WEDS !!!!**  
Homework: read "The Nebraska Problem", make a simple maze generator tech demo
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- 3/15      \*\*\* SPRING BREAK \*\*\* NO CLASS \*\*\* BUT FINISH YOUR HOMEWORK \*\*\***
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- 3/22      WEEK 9: raycasting is one of the most important things to learn in this class**  
Homework: analyze a Polycount thread, make a simple AI maze explorer robot tech demo
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- 3/29      WEEK 10: more proc gen / for and while loops, more Unity UI stuff**  
Homework: do assigned play research, build AI ecosystem tech demo
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- 4/5      WEEK 11: !!! BEGIN FINAL PROJECT !!! working as a group**  
Homework: read Kazemi pg 1-46, prepare systems tech demos for final project
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- 4/12      WEEK 12: intro to animation in Maya, code review in lab**  
Homework: read Kazemi pg. 47-82, prepare a playable build for final project
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- 4/19      WEEK 13: in-class playtest, on game feel and "juiciness", coroutines**  
Homework: read Kazemi pg. 83-123, prepare "gameplay complete" prototype for testing
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- 4/26      WEEK 14: in-class playtest, probably panic, code review in lab**  
Homework: work on your final project and add some juiciness
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- 5/3      WEEK 15: final presentations, cake party, review, and a look to the future**  
Homework: finish your final project, release your final to the public
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**>>> NO FINAL EXAM.    FINAL DELIVERABLES ARE DUE ON MAY 10. <<<**

## 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:

- 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
- Peer grades and participation in writing group evaluations

### 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) 2 positive observations. Particular skills, behaviors, decisions, or ways which member made positive contribution.
- b) 2 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 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.

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