GAM-120-JJ1: Intro to Game Logic – Spring 2026

Course Syllabus

Meeting Time and Location: Fridays, 1:10-4:10 PM, Fine Arts 249

Instructor: Matthew DiMatteo (he/him)

Email: mdimatteo@rider.edu

Office Hours: Tuesdays, Thursdays, Fridays, 4:20-5:20 PM (or by appointment), Fine Arts 214

If I'm not in my office, check for me in our classroom (Fine Arts 249)

Contents

Health and Wellness Resources

Public Safety (Non-Emergency) 609-896-5029

Public Safety (Emergency) 609-896-7777

National Suicide and Crisis Lifeline: **Dial 988**

Student Health Center: Poyda Hall – healthcenter@rider.edu **609-896-5060**

Counseling Center: Zoerner House – counseling@rider.edu **609-896-5157**

Report an Incident

Tutoring and Accessibility Support

Academic Success Center: Bart Luedeke Center, Suite 237, academicsuccesscenter@rider.edu

Student Accessibility and Support Services: Bart Luedeke Center, Suite 201, accessibility@rider.edu

Mutual respect and a commitment to inclusiveness are crucial to a positive learning environment. In this course, we will honor all members of the Rider community by fostering a learning environment that is respectful of others based on their identities and past experiences, including race, ethnicity, national origin, gender, sexuality, age, religion, culture, veteran status, and disability. I encourage any student who has concerns about the climate of this classroom or the behavior of others in the class to discuss matters with the instructor or department chair.

Course Description

Intro to Game Logic introduces students to strategies for technical implementation of digital games. Students learn programming techniques and design patterns for popular genres and formats through small game development projects and problem-solving exercises. Weekly lessons include a mix of technical demonstration and lab time for help and troubleshooting.

Course Learning Goals

Students will:

1. Understand the logic governing the construction of digital games.
2. Understand traditional design patterns for constructing different forms of digital games.
3. Understand foundational programming concepts transferable to other languages and environments.
4. Understand techniques for constructing game worlds in various formats.
5. Construct, test, and revise digital game prototypes.
6. Understand techniques for troubleshooting digital games.
7. Leverage online learning resources to become independent problem solvers.

Course Requirements

1. Students will be expected to arrive to class on time, follow along with in-class demos, participate in workshops, and complete assignments by the date due. In the event of absence, students are responsible for communicating with the instructor in a timely manner, catching up on material covered in class, and completing any missed assignments.
2. Students should expect to spend a few hours per week outside of class time to complete assignments. Students are strongly encouraged to work consistently throughout the semester. Always take into account lab hours and possible technical problems when planning the time you will spend on assignments.
3. Students are expected to make use of learning resources available online in addition to any aid provided in the classroom.
4. Students are responsible for saving and backing up their work, and are strongly encouraged to utilize multiple backup locations, such as external hard drives and cloud storage services (such as Google Drive, Dropbox, etc.) in addition to personal computers. Because students are expected to routinely back up their files, the loss of data is not considered an acceptable excuse for late or missing work.

Course Materials

- **Canvas**: Resources for each week's class will be posted in the Modules section. Assignment instructions and submission can be found in the Assignments section. The Announcements section will be used to post notifications on any changes to our meeting schedule or other relevant news. Any announcements made will also be copied as a class-wide email.
- **PICO-8**: The game engine we'll be using for this course. Students can use the free, educational version, which runs in a web browser: https://www.pico-8-edu.com/. The desktop version of the software is also available (Windows only). Download it from Canvas.
- **GitHub**: I've created a GitHub repository called "helloworld" that contains several sets of examples for the projects we'll be completing this semester. Download the latest release
- **PICO-8 Learning Resources**: *There is no textbook for this course.* In addition to the GitHub examples, students are strongly recommended to refer to PICO-8's online documentation and learning resources:
  - PICO-8 Home
  - Documentation and Tutorials
  - Cheat Sheet (Quick Reference)
  - PICO-8 Wiki (Function Reference)
  - More: PICO-8 Learning Resources Spring 2026
- **Optional: Microsoft Visual Studio Code (or alternative programming environment)**
  - PICO-8's code editor uses a heavily stylized font and runs in a relatively small window; some students may prefer to do their coding in an external editor. Microsoft Visual Studio Code is an industry-standard, cross-platform programming environment that can be downloaded for free and installed on Mac, Windows, or Linux. It is also installed on each of the workstations in our classroom.
  - Highly recommended for VS Code is the pico8-ls extension which provides syntax highlighting for the Lua programming language that PICO-8 uses. Setup and workflow for using an external code editor will be covered in the first few weeks of class.

Assignments by Category (all due by 5:30 PM on the date listed)

Jump to Assignments Guide for complete assignment instructions

Projects		**3 for 15% each**	**45%**
Due Week 06	Mar. 6	Project #1: Paddleball Game	15%
Due Week 11	Apr. 17	Project #2: Top-Down Adventure Game	15%
Due at Finals	May 8	Project #3: Sidescrolling Platformer Game	15%

Exercise Sets		**3 for 10% each**	**30%**
Due Week 05	Feb. 27	Exercise Set #1	10%
Due Week 10	Apr. 10	Exercise Set #2	10%
Due Week 13	May 1	Exercise Set #3	10%

Weekly Progress Check-ins	**10 for 2.5% each**	**25%**

- *Due after class each week, except when a project is due*

Assignments Calendar

Due Week 02	Feb. 6	Week 02 Progress Check-in	2.5%
Due Week 03	Feb. 13	Week 03 Progress Check-in	2.5%
Due Week 04	Feb. 20	Week 04 Progress Check-in	2.5%
Due Week 05	Feb. 27	**Exercise Set #1**	**10%**
		Week 05 Progress Check-in	2.5%
Due Week 06	Mar. 6	**Project #1: Paddleball Game**	**15%**
Due Week 07	Mar. 13	Week 07 Progress Check-in	2.5%
Due Week 08	Mar. 27	Week 08 Progress Check-in	2.5%
Due Week 09	Apr. 3	Week 09 Progress Check-in	2.5%
Due Week 10	Apr. 10	**Exercise Set #2**	**10%**
		Week 10 Progress Check-in	2.5%
Due Week 11	Apr. 17	**Project #2: Top-Down Adventure Game**	**15%**
Due Week 12	Apr. 24	Week 12 Progress Check-in	2.5%
Due Week 13	May 1	**Exercise Set #3**	**10%**
		Week 13 Progress Check-in	2.5%
Due at Finals	May 8	**Project #3: Sidescrolling Platformer Game**	**15%**

Grading Scale

A	93.50-100%*
A-	89.50-93.49%
B+	86.50-89.49%
B	83.50-86.59%
B-	79.50-83.49%
C+	76.50-79.49%
C	73.50-76.49%
C-	69.50-73.49%
D	59.50-69.49%
F	0-59.49%

**A is the highest grade instructors can enter for final grades.*

Students must earn a **D or higher to pass the course** and earn its 3 credits.

Students must average a **C or higher across their courses** (2.0 GPA) to remain in Good Academic Standing.

Late Work Policy

- All assignments (unless otherwise specified) must be submitted to Canvas **by 5:30 PM** on the date due.
- Any assignment turned in late will be subject to a **2% late penalty each calendar day** it is late.
- For students with **only one missing assignment**, the **late penalty will be capped at 10%**, meaning students can still receive up to 90% credit on that late assignment as long as it is submitted by the end of the semester.
- Each student will have **2 Free Extension Passes** for requesting **extensions on assignments**. *Extensions may not be longer than one calendar week*. Students *must* make the request to receive an extension; extensions cannot be granted retroactively.
- Assignments not turned in will receive a grade of 0, though the grade can be revised once the assignment is submitted.
- *Please note that late work policies will likely differ in your other courses and are determined by individual instructors.*

Artificial Intelligence Policy

- **All generative artificial intelligence tools are strictly prohibited in this course**. You are expected to complete all of your work without the use of AI-generated code. Students turning in work violating this policy will be subject to all academic and disciplinary procedures associated with plagiarism and cheating.
- Using AI to provide a general overview of programming strategies for a particular problem is acceptable, provided that no AI-generated code is included in the project.
- **Rationale**: While AI tools can be useful programming resources, they are sometimes prone to errors, and even valid output must often be adapted to one's particular code base. Therefore, AI coding tools are best used with a sound understanding of programming fundamentals, which this course is designed to teach. I want students in this course to learn these foundational skills before incorporating AI into their programming workflow.

Attendance Policy

- *All class meetings will be **Fridays** from **1:10-4:10 PM** in **Fine Arts 249**. Attendance is mandatory for all students unless otherwise specified.*
- **Each unexcused absence will result in a grade penalty of 2 percentage points deducted from the overall semester grade**. Each unexcused **tardiness** of more than 30 minutes will result in a grade penalty of **1 percentage point deducted** from the overall semester grade.
  - *e.g., a student averaging 88%, but with 2 unexcused absences, would receive a final grade of 84%.*
- Each student will have **2 Excused Absence Passes**. To use one of these passes, the student must provide timely notice ahead of any anticipated absence or tardiness, and it will be **excused** with **no grade penalty**.
- If a student must miss a class and has used both of their Excused Absence Passes, a doctor's note will be required for the absence to be excused.

Course Schedule (subject to change)

Week 01 (Jan. 30) — Intro to Game Programming with PICO-8

- Course Overview: Policies, Materials, Grading Criteria
- Example PICO-8 Games: Download from Canvas | Browse Lexaloffle
- GitHub Repository for this Course: helloworld | Latest Release | PICO-8 Learning Resources Spring 2026
- Getting Started with the PICO-8 Editor: Using the Editor, Drawing Sprites, Saving Your Work
- This Week's Examples from intro_to_game_programming.zip
    - intro_01_hello_world.p8 .... Your first PICO-8 program
    - intro_02_coordinate_plane.p8 .... Understanding PICO-8's x,y coordinate system
    - intro_03_text.p8 .... How to position text on the screen
    - intro_04_color.p8 .... How to specify the color of text
    - intro_05_layers.p8 .... Drawing objects on top of each other
    - intro_06_sprites.p8 .... Displaying sprites in your game
- Function Reference:
    - print() .... Display text at position x,y
    - rect() .... Draw a rectangle given points x1,y1 and x2,y2
    - rectfill() .... Fill a rectangle with a color
    - circ() .... Draw a circle given points x,y and a radius
    - circfill() .... Fill a circle with a color
- Optional Student Stress Factors Survey

Week 02 (Feb. 6) — Creating a Paddleball Game: Variables & Input

- The PICO-8 Game Loop: _init(), _update(), _draw() | _newgameloop.p8
- This Week's Examples from paddleball_basic.zip:
    - paddleball_basic_01_sprites.p8 .... Draw the ball and paddle sprites
    - paddleball_basic_02_variables.p8 .... Draw the ball at a variable y position
    - paddleball_basic_03_variables2.p8 .... Use variables for all object properties
    - paddleball_basic_04_input_and_movement.p8 ...... Press arrow keys to move the paddle
    - paddleball_basic_05_conditional_logic.p8 .... Keep the paddle from going off screen
- Function Reference:
    - btn() .... Detect if a button is being pressed
    - btnp() .... Detect if a button was pressed and released
- Conditional Operators < > <= >= ==
- Setting up an External Code Editor: Microsoft Visual Studio Code, pico8-ls Extension
- Due by 5:30 PM: Week 02 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
    - Exercise Set #1 (Due Week 5, Feb. 27)
    - Project #1: Paddleball Game (Due Week 6, Mar. 3)

Week 03 (Feb. 13) — Creating a Paddleball Game: Functions & Conditions

- Organizing Your Code Using Tabs (in the PICO-8 Editor)
- This Week's Examples from paddleball_basic.zip:
  - paddleball_basic_06_functions.p8 .... Writing and "calling" your own functions
  - paddleball_basic_07_collision.p8 .... Detecting when two objects collide
- Collision Detection Illustrated
- Due by 5:30 PM: Week 03 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
  - Exercise Set #1 (Due Week 5, Feb. 27)
  - Project #1: Paddleball Game (Due Week 6, Mar. 3)

Week 04 (Feb. 20) — Creating a Paddleball Game: Conditional Logic

- This Week's Examples from paddleball_basic.zip:
  - paddleball_basic_08_reverse_direction.p8 .... Making the ball bounce when it hits the paddle
  - paddleball_basic_09_bounce.p8 .... Moving the ball sideways and bouncing
- Truth Tables and Conditional Logic | Logical Operators AND, OR
- Absolute vs. Relative Expressions
- Due by 5:30 PM: Week 04 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
  - Exercise Set #1 (Due Week 5, Feb. 27)
  - Project #1: Paddleball Game (Due Week 6, Mar. 3)
- Mid-Semester Student Feedback Survey (Optional, Ungraded)

Week 05 (Feb. 27) — Paddleball Game Workshop: Finishing the Game

- Using the Sound Editor and Adding Sounds
- This Week's Examples from paddleball_basic.zip:
  - paddleball_basic_10_score_and_lives.p8 .... Score & lives, resetting the ball after a miss
  - paddleball_basic_11_gameover.p8 .... Ending the game when lives run out
  - paddleball_basic_11a_gameover_screen.p8 .... Displaying a game-over screen
  - paddleball_basic_12_restart.p8 .... Restarting the game
  - paddleball_basic__template.p8 .... Complete paddleball template
- Feature Brainstorming, Demos on Demand, Lab Time & Questions, Help & Troubleshooting
- Optional: Try an Advanced Version with Physics: _helloworld_01a_paddleball_physics.zip
- Due by 5:30 PM:
  - Exercise Set #1 (10% of Semester Grade)
  - Week 05 Progress Check-in (2.5% of Semester Grade)
- Upcoming: Project #1: Paddleball Game (Due Week 6, Mar. 3)

Week 06 (Mar. 6) — Paddleball Game Workshop: Help & Troubleshooting

- Demos on Demand, Lab Time & Questions, Help & Troubleshooting
- Due by 5:30 PM: Project #1: Paddleball Game (15% of Semester Grade)

Week 07 (Mar. 13) — Creating a Top-Down Adventure Game: Tile-Based Movement

- Using the Map Editor | Tile Coordinates vs. Pixel Coordinates | Using Sprite Flags for Map Collision
- This Week's Examples from _helloworld_misc_topics.zip:
  - misc_tables.p8 ....Using tables to store multiple related values
  - misc_tables_for_game_objects.p8 ....Using tables to define game objects
  - Understanding Tables
- This Week's Examples from _helloworld_02_topdown.zip:
  - topdown_00_assets_only.p8 ....Game loop, sprites, and map
  - topdown_01_map_and_player.p8 ....Defining the player object as a table
  - topdown_02_input_and_movement.p8 .... Moving the player one tile at a time
  - topdown_03_collision.p8 .... Locating the tile the player is trying to go to
  - topdown_04_collision2.p8 .... Checking for walls and moving the player
  - topdown_05_direction.p8 ....Flipping the player sprite and setting direction
  - topdown__template.p8 ....Complete tile-based movement template
- Function Reference:
  - mget() ....Get the sprite number of a tile at x,y
  - fget() .... Check for flags on a sprite with number n
- Top-Down Adventure Tutorial Playlist by Dylan Bennett
- Due by 5:30 PM: Week 07 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
  - Exercise Set #2 (Due Week 10, Apr. 10)
  - Project #2: Top-Down Adventure Game (Due Week 11, Apr. 17)

No Class Mar. 20 (Spring Break)

Week 08 (Mar. 27) — Creating a Top-Down Adventure Game: Interacting with Map Tiles

- This Week's Examples from _helloworld_02_topdown.zip:
  - topdown_item_collection.p8 .... Collecting items / interacting with map tiles
  - topdown_lock_and_key.p8 ....Lock & key systems
- Function Reference:
  - mset() .... Change the sprite at tile x,y
- Top-Down Adventure Tutorial Playlist by Dylan Bennett
- Due by 5:30 PM: Week 08 Progress Check-in (2.5% of Semester Grade)

- Upcoming:
  - Exercise Set #2 (Due Week 10, Apr. 10)
  - Project #2: Top-Down Adventure Game (Due Week 11, Apr. 17)

Week 09 (Apr. 3) — Creating a Top-Down Adventure Game: Camera and Map

- This Week's Examples from _helloworld_02_topdown.zip:
  - topdown_camera.p8 .... Positioning the camera
  - topdown_warp.p8 .... Dungeons and interior areas, warping
- Top-Down Adventure Tutorial Playlist by Dylan Bennett
- Due by 5:30 PM: Week 09 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
  - Exercise Set #2 (Due Week 10, Apr. 10)
  - Project #2: Top-Down Adventure Game (Due Week 11, Apr. 17)

Week 10 (Apr. 10) — Top-Down Adventure Game Workshop: Help & Troubleshooting

- Demos on Demand, Lab Time & Questions, Help & Troubleshooting
- This Week's Examples from _helloworld_02_topdown.zip:
  - topdown_large_sprites.p8 ....Map collision with large sprites
  - topdown_pixel_based_movement.p8 ....Map collision with pixel-based movement
  - topdown_pixel_based_collection.p8 ....Item collection with pixel-based movement
- Top-Down Adventure Tutorial Playlist by Dylan Bennett
- Due by 5:30 PM:
  - Exercise Set #2 (10% of Semester Grade)
  - Week 10 Progress Check-in (2.5% of Semester Grade)
- Upcoming: Project #2: Top-Down Adventure Game (Due Week 11, Apr. 17)

If you wish to withdraw from a course, you must do so by this Friday (see Academic Calendar)

Week 11 (Apr. 17) — Creating a Sidescrolling Platformer Game: Movement and Collision

- This Week's Examples from _helloworld_03_sidescroller.zip:
  - sidescroller_00_assets_only.p8 ....Game loop, sprites, and map
  - sidescroller_01_map_and_player.p8 ....Defining the player object
  - sidescroller_02_horizontal_movement.p8 ....Moving the player left and right
  - sidescroller_03_delta_x.p8 ....Using delta-time for movement
  - sidescroller_04_friction.p8 ....Applying friction
  - sidescroller_05_jumping.p8 .... Allowing the player to jump
  - sidescroller_06_gravity.p8 ....Falling back down after a jump
  - sidescroller_07_map_collision.p8 .... Detecting when the player is touching the ground
  - sidescroller_08_jumping2.p8 .... Adjusting the jump function
  - sidescroller_09_walls.p8 .... Detecting when the player is touching walls
  - sidescroller_10_polish_and_debug.p8 ....Position correction and debug mode

    - sidescroller__template.p8 .... Complete sidescroller template
- Delta Time
- Side-Scrolling Platformer Tutorial Playlist by Nerdy Teachers on YouTube
- Due by 5:30 PM: Project #2: Top-Down Adventure Game (15% of Semester Grade)
- Upcoming:
    - Exercise Set #3 (Due Week 13, May 1)
    - Project #3: Sidescrolling Platformer Game (Due at Finals, May 8)

Week 12 (Apr. 24) — Creating a Sidescrolling Platformer Game: Additional Features

- This Week's Examples from _helloworld_03_sidescroller.zip:
    - sidescroller_camera.p8 ....Centering the camera on the player
    - sidescroller_respawn.p8 ....Pits and respawning
    - sidescroller_animation.p8 .... Animating a sprite
    - sidescroller_multiple_levels.p8 .... Transitions between levels
    - sidescroller_pickups.p8 .... Collectible items
- Side-Scrolling Platformer Tutorial Playlist by Nerdy Teachers on YouTube
- Due by 5:30 PM: Week 12 Progress Check-in (2.5% of Semester Grade)
- Upcoming:
    - Exercise Set #3 (Due Week 13, May 1)
    - Project #3: Sidescrolling Platformer Game (Due at Finals, May 8)

Course Evaluations will be open near the end of the semester (an email will be sent with the precise dates) – if at least 75% of the class completes these, I will give everyone 1 percentage point ***extra credit*** *added to your final grade*

Week 13 (May 1) — Sidescrolling Platformer Game Workshop: Help & Troubleshooting

- Demos on Demand, Lab Time & Questions, Help & Troubleshooting
- This Week's Examples from _helloworld_misc_topics.zip:
    - misc_enemies.p8 ....Collision with enemies
    - misc_layered_map.p8 .... Drawing the map as foreground/background
    - misc_music.p8 .... Adding background music
    - misc_projectiles.p8 ....Shooting projectiles
    - misc_state_machine.p8 ....A more sophisticated start/end screen method
    - misc_timer_countdown.p8 .... Adding a time limit or countdown timer
- Side-Scrolling Platformer Tutorial Playlist by Nerdy Teachers on YouTube
- Due by 5:30 PM:
    - Exercise Set #3 (10% of Semester Grade)
    - Week 12 Progress Check-in (2.5% of Semester Grade)
- Upcoming: Project #3: Sidescrolling Platformer Game (Due at Finals, May 8)

If you wish to request a grade of Incomplete for this course, you must do so by this date

Final Exam Period (May 8) — Sidescrolling Platformer Game Workshop: Help & Troubleshooting

Final Exam Meeting *[OPTIONAL]*: **Friday, May 8, 1:00-3:00 PM, FA 249 (our usual location, slightly earlier)**

- Lab Time & Questions, Help & Troubleshooting
- Due by 5:30 PM: Project #3: Sidescrolling Platformer Game (15% of Semester Grade)

Closing the Semester

*Canvas Course closes **Tue. May. 12 at 12:00 PM** – submit any late work by this deadline*

Assignments Guide

Jump to Assignments List

Weekly Progress Check-ins

Due by 5:30 PM after class each week, except when a project is due

2.5% of Semester Grade Each

Instructions

- Each week during class, you'll be expected to follow along with my demo and make progress toward completing your project for the current unit (Paddleball, Top-Down Adventure, or Sidescrolling Platformer).
- At the end of class each week (except when one of those three projects is due), I'd like you to **upload your in-progress PICO-8 file (.p8 file) to Canvas** so I can see how you're doing with the material.
  - *These progress check-ins are still due on weeks when an Exercise Set is due.*
- This is also an opportunity for you to **voice any questions or concerns** about the material or the course. You can do so as a submission comment, a text file, or voice recording. Please note that I'm also happy to help you with any trouble you're having during class, during office hours, or via email.
- Please note that I'm NOT expecting your game to be complete at this point. I won't be evaluating these check-ins based on how well your game works or what features you have implemented. ***I'm only looking to see that you're actively working on the project and making an honest effort.***

If you are unable to attend class, you may choose to use one of your 2 free passes for requesting an extension; however, since each check-in is only worth a small percentage of the overall grade, you may prefer to save your free passes for larger projects and take a small late penalty on the check-in, completing it as soon as possible.

Submitting Your Work

- **Save your game** as a **.p8** file. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 file** to the Canvas page for the current week's check-in.
- Optional: Include any questions or concerns you have as a submission comment, text file, or media recording.
- Submit by **5:30 PM** on the date due.

Grading Rubric

- **100%** The PICO-8 (.p8) file for the game demonstrates an honest effort to make progress on the project.
- **90%** In-class participation has demonstrated good progress, but no submission has been provided.
- **50%** A PICO-8 file has been submitted, but progress is not evident.
- **0%** Nothing has been submitted, and progress in class has not been evident.

Exercise Set #1

Due Week 5 (Feb. 27)

10% of Semester Grade

Instructions

Please complete **each** of the **3** following exercises. **Download the .p8 files for each exercise** and read the instructions at the top of the file. Each file has **something wrong with it that you must fix**, or must be modified in some way to produce alternative behavior. When you are done, save each modified file and upload to Canvas (*see "Submitting Your Work" below for more details*).

Exercise 1-1: Variables

This example uses variables to determine the ball's x,y position and sprite.

- Check the sprites tab. See how there are two different sprites for the ball (blue and pink)? The ball is currently blue.
- ***Goal: Modify this example so that the ball uses the pink sprite instead.***

Exercise 1-2: Variables 2

- This example uses variables to determine the ball's x,y position and sprite.
- The ball is not moving. Why not? Make sure variables are being used in all the right places.
- ***Goal: Fix this example so that the ball moves down the screen.***

Exercise 1-3: Conditional Logic

- This example uses if/then statements to keep the paddle from going off screen.
- ***Goal: Modify the example so that the paddle instead wraps around the screen***, appearing on the left side after going off screen on the right, and vice-versa (like in Pac-Man).

Submitting Your Work

- **Save all modified examples** as **.p8** files. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 files** to Canvas by **5:30 PM** on the due date listed above.

Grading Rubric for Exercise Sets 1-3

- **100%** All three files have been completely corrected to achieve the intended results.
- **85%** Two of the files have been completely corrected, but one has been only partly corrected.
- **70%** Two of the files have been completely corrected, but one of the files has not been corrected; OR one of the files has been completely corrected, but two have been only partly corrected.
- **50%** One file has been completely corrected, one partly corrected, and one not corrected; OR all three files have been only partly corrected.
- **35%** One of the files has been completely corrected, but the other two have not been corrected; OR two files have been partly corrected, but one has not been corrected.

- **20%** One of the files has been partially corrected, but the other two have not been corrected.
- **0%** None of the files have been correctly modified, or no work was submitted.

Project #1: Paddleball Game

Due Week 6 (Mar. 6)

15% of Semester Grade

Instructions

- Using PICO-8, create a paddleball game with **some new features added** that **expand on** the in-class demo.
- *The more substantial your additions, the more favorably your project will be evaluated.*
- Some popular additions include:
  - A second ball or paddle
  - Falling or stationary obstacles or hazards that must be avoided
  - Powerups that change the size, speed, or other properties of the ball or paddle
  - An innovative scoring system or difficulty progression (such as an increase to the ball's speed after the player has scored a certain number of points)
  - Blocks to destroy (like *Breakout)*
  - Variations to the gravity or physics system
- **Test your game** to make sure it runs! Points will be lost for game-breaking bugs.
- **Organize your code** so that it's easy to read. Name variables and functions clearly. Use consistent indentation. Add comments where helpful.

Submitting Your Work

- **Save your game** as a **.p8** file. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 file** to Canvas by **5:30 PM** on the due date listed above.

Grading Rubric for Projects 1-3

- **100%** There has been substantial innovation on top of the basic example from class. No bugs or oversights detract from the intended gameplay experience.
- **90-99%** There has been notable innovation on top of the basic example from class. Minor oversights may slightly detract from the intended gameplay experience.
- **80-89%** There has been adequate innovation attempted OR the game may require some minor troubleshooting to work as intended.
- **70-79%** There has been only modest innovation attempted OR the game requires some troubleshooting to work as intended.
- **50-69%** There has been little to no innovation attempted OR the game requires significant troubleshooting to work as intended.
- **1-49%** The game requires comprehensive troubleshooting and is generally incomplete.
- **0%** No work has been submitted OR the work has not been submitted in the proper format.

Exercise Set #2

Due Week 10 (Apr. 10)

10% of Semester Grade

Instructions

Please complete **each** of the **3** following exercises. **Download the .p8 files for each exercise** and read the instructions at the top of the file. Each file has **something wrong with it that you must fix**, or must be modified in some way to produce alternative behavior. When you are done, save each modified file and upload to Canvas (*see "Submitting Your Work" below for more details*).

Exercise 2-1: Object Tables

- This example shows a new way to define the properties of a game object, such as its sprite number and x,y coordinates. See how the paddle is being defined where *pad* is a table (like a spreadsheet) that can be used to contain a list of values. To add those values to the table, you type the table name (such as *pad*) followed by a dot, then whatever you want to name the variables for those values. For example, *pad.n* is the sprite number for the paddle.
- ***Goal: Modify this example so that the ball is also defined as a table.*** Make sure to type the ball's variable names in the same pattern as the paddle's. Make sure the ball is being displayed properly when the game runs.
- *Hint: You'll need to change the ball's variable names in two places: where the variables are first defined, and then where they are used to draw the ball.*

Exercise 2-2: Tile-Based Movement

- This example is not working properly. The player is not moving as expected. The player should not be able to move through solid tiles like trees, but should be able to move otherwise.
- ***Goal: Fix this example so the player moves one tile at a time and can move freely unless blocked by a solid tile like a tree or rock.***
- *Hint: How many pixels wide and tall is one tile?*

Exercise 2-3: Item Collection

- This example allows the player to collect coins by walking over them. There are two types of coins: silver and gold. But right now, the player can only collect the silver coins.
- ***Goal: Modify this example so the player also can collect the gold coins by walking over them.*** The coins should disappear after being collected, and the player should get a greater amount of money when collecting a gold coin (silver are worth 1).

Submitting Your Work

- **Save all modified examples** as **.p8** files. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 files** to Canvas by **5:30 PM** on the due date listed above.

Project #2: Top-Down Adventure Game

Due Week 11 (Apr. 17)

15% of Semester Grade

Instructions

- Using PICO-8, create a top-down adventure game with **some new features added** that **expand on** the in-class demo. *The more substantial your additions, the more favorably your project will be evaluated.*
- Some popular additions include:
    - Hazards or enemies that damage the player when contacted (think about hit points and status conditions in addition to the basic lives system)
    - A dungeon or interior environment that requires “warping” to enter
    - Obstacles with item-based progression (as in games like *Metroid*, *The Legend of Zelda*, and *Pokemon*)
    - Creative interaction with tiles such as: planting seeds and watering crops; cutting grass or smashing rocks to reveal items; pushing blocks; triggering dialogue boxes for signs or NPCs
    - Pixel-based movement and collision (as opposed to the tile-based system covered in class)
    - Timed completion of a maze, collection task, or other objective
    - An animated character, object, or map tile sprite
- **Test your game** to make sure it runs! Points will be lost for game-breaking bugs.
- **Organize your code** so that it's easy to read. Name variables and functions clearly. Use consistent indentation. Add comments where helpful.

Submitting Your Work

- **Save your game** as a **.p8** file. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 file** to Canvas by **5:30 PM** on the due date listed above.

Grading Rubric for Projects 1-3

- **100%** There has been substantial innovation on top of the basic example from class. No bugs or oversights detract from the intended gameplay experience.
- **90-99%** There has been notable innovation on top of the basic example from class. Minor oversights may slightly detract from the intended gameplay experience.
- **80-89%** There has been adequate innovation attempted OR the game may require some minor troubleshooting to work as intended.
- **70-79%** There has been only modest innovation attempted OR the game requires some troubleshooting to work as intended.
- **50-69%** There has been little to no innovation attempted OR the game requires significant troubleshooting to work as intended.
- **1-49%** The game requires comprehensive troubleshooting and is generally incomplete.
- **0%** No work has been submitted OR the work has not been submitted in the proper format.

Exercise Set #3

Due Week 13 (May 1)

10% of Semester Grade

Instructions

Please complete **each** of the **3** following exercises. **Download the .p8 files for each exercise** and read the instructions at the top of the file. Each file has **something wrong with it that you must fix**, or must be modified in some way to produce alternative behavior. When you are done, save each modified file and upload to Canvas (*see "Submitting Your Work" below for more details*).

Exercise 3-1: Ceilings

- This example allows the player to move left/right and jump. There is collision detection with the floor, so the player won't fall through the level. But there is no collision with the ceiling.
- ***Goal: Modify this example so the player CANNOT jump up through the BLOCKS from below but so they CAN still jump up through the CLOUDS from below (and land on them).***
- *Hint: You may want to use different sprite flags to distinguish between blocks and clouds.*

Exercise 3-2: Hazards

- This example returns the player to the start and subtracts a life when they fall down a pit.
- ***Goal:***
  - ***Make the spikes and lava damage the player but not take away an entire life.***
  - ***The player should still be returned to the start after landing on these hazards.***
  - ***If the player's health runs out, a life should be lost and health reset.***
- *Hint: You may need to introduce a new sprite flag to represent hazard tiles, as well as add a way to keep track of health in addition to lives.*

Exercise 3-3: Camera Pan

- This example modifies the controls so that the player can press the z key along with an arrow key to pan the camera instead of moving the player.
- Or, well, it would. It's all set up to receive those button inputs, but it's up to you to make the camera work happen.
- ***Goal: Modify the example to pan the camera slightly ahead and behind the player depending on which arrow key is held down (you only need to handle left and right, not up and down).***

Submitting Your Work

- **Save all modified examples** as **.p8** files. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 files** to Canvas by **5:30 PM** on the due date listed above.

Project #3: Sidescrolling Platformer Game

Due at Finals (Friday, May 8 at 1:00 PM)

15% of Semester Grade

Instructions

- Using PICO-8, create a sidescrolling platformer game with **some new features added** that **expand on** the in-class demo. *The more substantial your additions, the more favorably your project will be evaluated.*
- Some popular additions include:
  - Pickups
  - Checkpoints
  - Bounce pads or speed boosts
  - Enemies or hazards
  - Projectiles
  - Special terrain (like ice that speeds the player up, or tar that slows the player down)
  - Gravity that changes in different areas of the game world, or from level to level
  - Custom victory conditions or bonus objectives like collection, completion time, etc.
  - A day-night cycle or other elements of the game world that refresh over time
- **Test your game** to make sure it runs! Points will be lost for game-breaking bugs.
- **Organize your code** so that it's easy to read. Name variables and functions clearly. Use consistent indentation. Add comments where helpful.

Submitting Your Work

- **Save your game** as a **.p8** file. You can do this in the PICO-8 editor by using the command **SAVE** followed by a filename and pressing the Enter or Return key.
- **Upload your .p8 file** to Canvas by **5:30 PM** on the due date listed above.

Grading Rubric for Projects 1-3

- **100%** There has been substantial innovation on top of the basic example from class. No bugs or oversights detract from the intended gameplay experience.
- **90-99%** There has been notable innovation on top of the basic example from class. Minor oversights may slightly detract from the intended gameplay experience.
- **80-89%** There has been adequate innovation attempted OR the game may require some minor troubleshooting to work as intended.
- **70-79%** There has been only modest innovation attempted OR the game requires some troubleshooting to work as intended.
- **50-69%** There has been little to no innovation attempted OR the game requires significant troubleshooting to work as intended.
- **1-49%** The game requires comprehensive troubleshooting and is generally incomplete.
- **0%** No work has been submitted OR the work has not been submitted in the proper format.

Rider University Undergraduate Academic Policies

Policy on Academic Integrity and Cases of Academic Dishonesty
This class will follow the policies of Rider University regarding Academic Integrity, as well as the procedures in addressing cases of Academic Dishonesty. The College's policies on such matters can be found in their entirety at: http://catalog.rider.edu/policies/code-academic-integrity/. Academic Dishonesty refers to a misrepresentation of the source or permissions related to the submission of written and creative works. In the area of digital design, this includes visual work, audio work, and written work. If in doubt, feel free to discuss sources with me before submission of work.

Academic Success Center
Students needing supplemental help beyond the scope of this class are encouraged to contact the Academic Success Center in Suite 237 of the Bart Luedeke Center. The center's services include a writing studio, success coaching and the potential for tutoring services. Email academicsuccesscenter@rider.edu.

Academic Disability Policy
Rider University is committed to providing reasonable accommodations for all students with disabilities. If you are seeking classroom accommodations under the Americans with Disabilities Act or Section 504 of the Rehabilitation Act of Sample Syllabus Statements-Disabilities April 2021 1973, you are required to register with Student Accessibility and Support Services office (SASS) at the Bart Luedeke Center, Suite 201. SASS can be contacted by email at accessibility@rider.edu or by phone at 609-895-5492, To receive academic accommodations for this class, please obtain the proper accommodation form from SASS and meet with me at the beginning of the semester to discuss your accommodations.

Class Absence Notice
It is the student's responsibility to inform instructors of the nature and extent of an actual or anticipated absence. If that is impossible, or if the absence is or will be more than three (3) consecutive class sessions (seven (7) calendar days), the student should contact the Office of the Dean of Students at deanofstudents@rider.edu or 609-896-5101. Then the dean's office will notify the appropriate faculty member. More information about the procedure for notifying the dean's office of absences can be found at https://www.rider.edu/about/offices-services/student-affairs/dean-of-students/info-for-students/class-absence-notice

Incomplete Grades
Students who, as a result of extenuating circumstances, are unable to complete the required work of a course within the term, may request an extension of time from a faculty member. Such extensions of time can be granted only in cases in which illness or another serious emergency has prevented the student from completing the course requirements or from taking a final examination. The request for extension of time must be made prior to the last scheduled class meeting, except in those unusual situations in which prior notification is impossible.

The faculty member shall determine whether to grant the request for a time extension and the type of verification (if any) required to support the request. The faculty member shall specify the time, up to four weeks from the last day of the term, as specified in the academic calendar, by which work must be completed by the student. If the faculty member does agree to the request, the notation "I" (Incomplete) shall be submitted on the grade roll. In those situations where the faculty member has not received a request for an extension of time, the notation "I" (Incomplete) may be submitted on the grade roll by the faculty member when, in his or her judgment, such a determination appears justified. Upon submission of completed required work the faculty member shall submit a Change of Grade form to the Registrar.

Students who, as a result of extenuating circumstances, are unable to submit the completed required work at the end of the four-week period may request an extension of the incomplete grade. The request for an extension of the incomplete must be made prior to the expiration of the four-week period. If the faculty member agrees to the request for an extension of the incomplete, the faculty member shall specify the time, up to a maximum of two weeks from the date of expiration of the four-week period (i.e., six weeks from the last day of the term) by which work must be completed by the student and shall submit an Extension of Incomplete form to the Registrar.

Upon submission of completed required work, the faculty member shall submit a Change of Grade form to the Registrar and assign the course grade. Failure of the Registrar to receive from the faculty member a Change of Grade form or an Extension of Incomplete form at the end of the four-week period, or a Change of Grade form at the end of the six-week period shall result in the automatic assignment of the grade "F," "Z," or "U" by the Registrar.

Students who receive an incomplete in a course that is part of a course sequence must obtain permission from the department chairperson to remain enrolled in the next course in the sequence or they will be removed from that next course.

More information on grade reports can be found here:
http://catalog.rider.edu/policies/undergraduate/grades/

Courses — Adding, Dropping, Withdrawing, Auditing, Repeating

Students may add courses through the first week of the regular semester at their own discretion provided the course is still open for registration. Students may drop courses through the second week of the regular semester at their own discretion. In such cases, the courses are deleted from the student's record. After the second week of the semester, a withdrawal from the course is necessary and a 'W' is recorded on the transcript.

Students may withdraw from courses and receive a grade of 'W' during the third through tenth weeks of the semester. The student's academic advisor and financial aid counselor will be notified of class withdrawals by email. View the course drop/withdrawal policy:
https://www.rider.edu/tuition-aid/financial-aid/payment-billing/drop-withdrawal-policy

Spring 2026 withdrawal dates can be found on the Rider Academic Calendar:
https://catalog.rider.edu/academic-calendar/#Spring%20Withdrawal%20Dates

More information on course processes can be found here:
http://catalog.rider.edu/policies/undergraduate/courses-add-drop/

Registrar forms can be found here:
https://www.rider.edu/academics/academic-support/registrar/forms