# CPSC 427 - Video Game Programming

# Fall 2019/20

## Milestone 4: Final Game – November 29, 2019

The final version of your game should support robust and continuous gameplay as well as integrate advanced game elements. It should be self-contained – namely players should be able to play the game with no outside help or explanations. You should implement one or more additional advanced gameplay features (AI, physics, geometry, or other) and incorporate one or more advanced play features using either a game engine or alternative tools. The game should fully comply with your game development plan.

**(100%)** *Milestone requirements:*

- **Stability** (15%):
  - Include complete playable prior-milestone implementation. Fix all bugs identified in prior marking sessions.
  - The game code should support continuing execution and graceful termination, with no crashes, glitches, or other unpredictable behavior.
- **Playability** (15%): Sustain progressive, non-repetitive gameplay across one or more levels for **10 minutes.** During this time the player should be able to interact with the game and see new content for most of the time. You will lose points if any bugs identified in prior marking sessions remain unfixed and interfere with the gameplay.
- **User Experience** (15%):
  - Include a self-explanatory tutorial introducing the player to the game mechanics. The game should be self-explanatory with **no verbal explanation required at any point during the gameplay** (10%).
  - Evaluate and optimize user-game interactions (choice of user gestures, ease of navigation, etc.). Report on the user testing you performed, including user feedback. Report on the changes you implemented in response to the feedback (5%).
- **External Integration** (10%): Include integration of one or more external tools or libraries (physical simulation (PhysX, Bullet, ODE, etc.), game engines, or alternatives).
- **Advanced Graphics** (20%): Implement one or more advanced graphics features such as visual effects (Particle Systems, 2.5D(3D) lighting, 2D dynamic shadows), or advanced 2D geometric modifications (2D deformations, rigged/skinned motion).
- **Advanced Gameplay** (20%): Implement one or more advanced gameplay features including advanced decision-making mechanisms based on goals (path planning, A*, or similar), advanced group behavior (e.g. coordination between enemies), or more complex physical interactions with the environment (e.g. gravity, bouncing, complex dynamics). To receive full marks, the physical effects implemented should be correctly integrated in

time and should not be locked to the machine's speed by correctly handling the simulation time step and integration.

- **Audio** (5%): Add audio feedback for all meaningful interactions in the game as well as background music with tones reflecting the journey of the game.

***Note:*** You will receive full credit for features only if they are **fully** operational. Points will be deducted for buggy and incomplete implementation.

**Your submission should align with your proposed development plan**: Provide a write-up explaining how your milestone aligns with the plan. Explain all discrepancies and **submit an updated proposal** when such discrepancies occur.

**Submission:** Submit the code and associated documents using the course Git repository that's been set up for you at https://github.students.cs.ubc.ca/CPSC427/team#. The repository is hosted on the UBC servers and will be accessible only to enrolled students. *Note that each team member is also expected to submit their individual progress & feedback report via 'handin'.*