



L-Università  
ta' Malta

<b>Course Title</b>	Advanced Game AI Assignment
<b>Course Code</b>	ICS3209
<b>Issue Date</b>	November 18, 2019
<b>Submission Date</b>	January 14, 2020
<b>Lecturer</b>	Mark Bugeja
<b>Assignment Guidelines</b>	
The assignment is divided into <b>THREE</b> different sections. The aim of this assignment is to understand and implement a Reinforcement Learning technique/s and apply them to video game development.	
<b>Submission Guidelines</b>	
Put all relevant files in a <b>ZIPPED</b> folder with the folder name formatted as follows:  <b><i>Studentname_ICS3209_assignment1</i></b>  <i>Eg: Student Jon Snow</i>  <i>jonsnow_ICS3209_assignment1.zip</i>  Folder structure:  → Practical Component ◆ Files → Written Component ◆ Files	

# ICS3209 - Advanced Game AI Assignment

**Group assignment of not more than 3 students\***

## **Practical Component - 60 marks**

Develop a game using unity3d Game engine (you can choose any game). Your game should include a Reinforcement Learning component. This can take the form of a mechanic within the game, a simulation of playing the game or even an agent playing against the player.

*Eg: Pacman, you can either train the ghosts in Pacman using RL techniques, you can train Pacman to play the game, or you can adapt the game for two players with one player trained using RL to play the game (eat everything).*

## **Marks**

**30% on the Game**

**10% on Code**

**50% on RL technique/s chosen**

**10% for adding extra AI to your game**

## **Written Component - 30 Marks**

Write a **10 - 12-page report** describing the game you developed, the Reinforcement Learning components of your game, the decision you took when developing your game, any changes future changes you would do to your game (AI perspective)

*Use IEEE paper format.*

Your report should include the following

- **Introduction** - describing your game (mechanics, visuals etc)
- **Background** - literature on RL
- **Methodology** - describing the RL chosen for your game
- **Results** - describe the behaviour of the agents
- **Conclusion and Future work** - what you concluded from the exercise and what you would change in the future to make it better.

## **Presentation - 10 marks**

10 min presentation summarising the work you conducted in the assignment (presented in groups).

**\*group number subject to change depending on the number of students taking the unit.**