



COMP2160

Game Development

Session 2, Special circumstance 2020

Department of Computing

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Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff

Convenor/Lecturer

Malcolm Ryan

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Contact via Email

By appointment

Lecturer

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TBA

Credit points

10

Prerequisites

(COMP1150 or COMP111 or MMCC1011 or MAS111) and (COMP1010 or COMP125)

Corequisites

Co-badged status

Unit description

This unit covers the production processes involved in the development of videogames. Students will learn how to apply software engineering principles to develop a game in a 3D game engine, focusing on specific programming problems that arise in the context of game development. Practical exercises emphasise agile team-based production process for project management.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Identify, articulate and adapt the key methodologies, theories and practices involved in game development.

ULO2: Demonstrate knowledge of project management within the context of game development.

ULO3: Apply software engineering principles to develop a game in a 3D game engine.

ULO4: Apply good programming practices in the context of game development.

ULO5: Identify and reflect upon the ethical issues that arise in the development of games.

General Assessment Information

Late Submission

No extensions will be granted except in cases of special consideration. Students who have not submitted any work for the task prior to the deadline will be awarded a mark of 0 for the task, except for special consideration cases. Plan to submit early.

Assessment Tasks

Name	Weighting	Hurdle	Due
Assignment 1	30%	No	Week 7
Assignment 2	30%	No	Week 13
Assignment 3	20%	No	Week 9
Weekly Quizzes	10%	No	Weekly
Weekly practical exercises	10%	No	Weekly

Assignment 1

Assessment Type ¹: Programming Task

Indicative Time on Task ²: 30 hours

Due: **Week 7**

Weighting: **30%**

You will develop a videogame to meet a specified design, and report on the software architecture employed and the performance of the game in terms of time and memory usage.

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.

Assignment 2

Assessment Type ¹: Programming Task

Indicative Time on Task ²: 30 hours

Due: **Week 13**

Weighting: **30%**

You will work in pairs to develop a videogame to meet a specified design. Emphasis will be placed on good project management following an agile methodology. You will report of the software architecture employed in the game.

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Demonstrate knowledge of project management within the context of game development.
- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.

Assignment 3

Assessment Type ¹: Essay

Indicative Time on Task ²: 20 hours

Due: **Week 9**

Weighting: **20%**

A short essay exploring one of the key ethical issues that arise in game development practice.

On successful completion you will be able to:

- Identify and reflect upon the ethical issues that arise in the development of games.

Weekly Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 5 hours

Due: **Weekly**

Weighting: **10%**

Weekly quizzes based on lecture material.

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Demonstrate knowledge of project management within the context of game development.
- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.
- Identify and reflect upon the ethical issues that arise in the development of games.

Weekly practical exercises

Assessment Type ¹: Participatory task

Indicative Time on Task ²: 0 hours

Due: **Weekly**

Weighting: **10%**

Weekly game programming exercises

On successful completion you will be able to:

- Identify, articulate and adapt the key methodologies, theories and practices involved in game development.
- Apply software engineering principles to develop a game in a 3D game engine.
- Apply good programming practices in the context of game development.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

CLASSES

COMP2160 is taught mainly through online notes and video presentations with a one hour lecture. Each week a number of video presentations will be made available on iLearn, you should watch these and follow up on the topics covered before the lecture. The lecture will recap some of the video content and provide a forum for discussion of the topics of the week.

You will also have a two hour workshop each week in the computer laboratory. This will be used as a combined tutorial and practical class, with tasks each week to engage you in the topics we are discussing. The workshops give you a chance to talk over any problems with your tutor. There will be a checkpoint task each week for you to complete in the workshop, you must do this in the workshop and show your tutor the result.

Since your tutor will be keeping track of your marks, you should attend the workshop that you enroll in. If you do need to change, make sure your tutor and the tutor in the new class agree.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

Prescribed Textbooks

There is no prescribed textbook for this unit. However, we recommend:

- [Game Programming Patterns](#), by R. Nystrom, Genever Benning, ISBN-13: 978-0990582908
- **The Game Production Toolbox**, by H. M. Chandler, CRC Press, ISBN-13: 978-1-138-34170-8

UNIT WEBPAGE AND TECHNOLOGY USED AND REQUIRED

Online Resources

The official location (URL) of unit information once you have loaded your WWW browser is: <http://ilearn.mq.edu.au>

Once you have enrolled in the unit, you must gain access to comp2160 website. We will be using the University's Online Learning at MQ website (iLearn). Students should check this site for regular updates.

Technology Used and Required

Unity 3D. The free version of this can be downloaded at <http://unity3d.com/get-unity>

Unit Schedule

Week	Lecture topics	Assessment
1	C# programming Event-based programming Behaviour-based programming & modularity	
2	2D & 3D geometry: Vectors and Quaternions The Transform Hierarchy / Scene Graph Handling input	
3	Prefabs, Instantiation & Destruction Singletons and Factories Object pooling & Garbage Collection Profiling	
4	Physics and Collision Coding Style and Review Audio	Assignment 1 released
5	UI implementation Game preferences Camera control Scene Management	
6	UI design Version control practices Accessibility	
7	Version control for teams Ethical issues in the games industry	Assignment 1 due Assignment 3 released
8	Testing and Quality Assurance Analytics	
9	Working with 3D models & rigging	Assignment 3 due Assignment 2 released
10	Game AI Path finding Finite state machines Procedural content generation	
11	Networking Serialisation	
12	Tool development Build tools Cross-platform development	
13		Assignment 2 due

Note: This is a guide only. Topics may change by week. Check the iLearn site for details.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)

- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

This is the first offering of this unit.