



# PSYM7762

## Computational Modelling in Psychology

Session 2, Special circumstances 2021

*Archive (Pre-2022) - Department of Psychology*

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#### **Disclaimer**

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#### **Session 2 Learning and Teaching Update**

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

## General Information

Unit convenor and teaching staff

Erik Reichle

[erik.reichle@mq.edu.au](mailto:erik.reichle@mq.edu.au)

Credit points

10

Prerequisites

Admission to MRes

Corequisites

Co-badged status

PSYH4462

Unit description

This unit will provide an introduction to computational modelling in (cognitive) psychology. The main goals of this unit are to foster both a basic understanding of the different approaches to modelling and an appreciation of the practical and philosophical issues related to modelling. The first part of the unit will focus on the following questions: (1) What are computational models of cognition?; (2) What are the major approaches (e.g., production systems) that are used to model cognitive processes?; (3) How are models developed and used in research?; and (4) How are models compared and evaluated? The second part of the unit will examine these issues in more depth by comparing models that have been developed to account for phenomena in specific areas of cognitive research (e.g., episodic memory). The final part of the unit will consist of student-led discussions of seminal modelling papers from the students' areas of interest. Students will also write brief descriptions of two model and a critique/review of existing models within their area of interest.

## 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:** Define and critically evaluate theories and models of human cognition, identifying the need for formal theories to understand cognitive psychology.

**ULO2:** Apply real-world examples to explain each of the different levels applicable to

formal theories of cognition.

**ULO3:** Demonstrate knowledge of the main assumptions, advantages and disadvantages of human cognition modelling.

**ULO4:** Identify and critically compare the breadth and scope of formal models of human cognition relative to other models in similar domains.

**ULO5:** Accurately summarize the core assumptions of formal models by writing a brief description of a model.

## General Assessment Information

Assignment Submission: The assignment must be submitted online via iLearn/Turnitin. You should upload this as a single file. If there are technical obstructions to your submission online, please email your unit instructor.

Late submissions, without an approved extension, will receive a 5% per day penalty including weekends and public holidays. If you submit the assessment task 10 days or more beyond the due date, you will be awarded a maximum of 50% of the overall assessment marks. No further submissions will be accepted after the marked assignments are returned and feedback is released to students.

All extensions need to be formally requested via [ask.mq.edu.au](http://ask.mq.edu.au) in line with the special consideration policy.

It is Psychology policy that letter grades, not numeric marks, are released for written assessment tasks.

Word count penalty: 5% of the possible mark will be deducted per 100 words over the word limit for the assessment task. An additional 99 words beyond the limit can be written without penalty.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Model description essay</u></a>	25%	No	Week 5
<a href="#"><u>Alternative approaches to modelling essay</u></a>	25%	No	Week 9
<a href="#"><u>Model comparison essay</u></a>	50%	No	Week 13

### Model description essay

Assessment Type <sup>1</sup>: Essay

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **Week 5**

Weighting: **25%**

Students will submit a 500 word essay describing a computational model

On successful completion you will be able to:

- Define and critically evaluate theories and models of human cognition, identifying the need for formal theories to understand cognitive psychology.
- Apply real-world examples to explain each of the different levels applicable to formal theories of cognition.
- Identify and critically compare the breadth and scope of formal models of human cognition relative to other models in similar domains.
- Accurately summarize the core assumptions of formal models by writing a brief description of a model.

## Alternative approaches to modelling essay

Assessment Type <sup>1</sup>: Essay

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Week 9**

Weighting: **25%**

Students will submit a 500 word essay summarizing the main differences between three alternative approaches to modeling

On successful completion you will be able to:

- Define and critically evaluate theories and models of human cognition, identifying the need for formal theories to understand cognitive psychology.
- Apply real-world examples to explain each of the different levels applicable to formal theories of cognition.
- Demonstrate knowledge of the main assumptions, advantages and disadvantages of human cognition modelling.
- Accurately summarize the core assumptions of formal models by writing a brief description of a model.

## Model comparison essay

Assessment Type <sup>1</sup>: Essay

Indicative Time on Task <sup>2</sup>: 40 hours

Due: **Week 13**

Weighting: **50%**

Students will submit a 1000 word essay comparing and contrasting 3 models of a particular research domain

On successful completion you will be able to:

- Define and critically evaluate theories and models of human cognition, identifying the need for formal theories to understand cognitive psychology.
- Identify and critically compare the breadth and scope of formal models of human cognition relative to other models in similar domains.
- Accurately summarize the core assumptions of formal models by writing a brief description of a model.

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<sup>1</sup> 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.

<sup>2</sup> 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

The lecture is scheduled to be held weekly on-campus. However, in line with Public Health guidelines, this approach will be revised if and when necessary due to the COVID pandemic, in alignment with University policy. Changes or updates will be communicated via iLearn and/or emails sent to student email accounts. Students should stay up to date with the latest University advice at the following website: <https://www.mq.edu.au/about/coronavirus-faqs/information-for-students>

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#) (<https://policies.mq.edu.au>). 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](#)

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

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Grading

Macquarie University, and Psychology undergraduate courses, follow standards-based assessment of student performance. All individual assessment tasks are subject to moderation, consistent with the Assessment Policy and Procedure. A student's final mark for this unit, and associated grade, must reflect their attainment of the unit learning outcomes, and isn't necessarily a simple summation of their individual assessment items.

## 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](http://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](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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/](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.