PSYH4462

Computational Modelling in Psychology

Session 2, Special circumstance 2020

Department of Psychology

Contents

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Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and ot her small group learning activities on campus for the second half-year, while keeping an online ver sion available for those students unable to return or those who choose to continue their studies onli ne.

To check the availability of face-to-face and onlin e activities for your unit, please go to timetable vi ewer. To check detailed information on unit asses sments visit your unit's iLearn space or consult yo ur unit convenor.

General Information

Unit convenor and teaching staff
Erik Reichle
erik.reichle@mq.edu.au

Credit points
10

Prerequisites

Corequisites
PSYH490 or PSHY4490 or PSYH495 or PSYH4495

Co-badged status

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 complete a modelling project or write 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 processes.

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.

Assessment Tasks

Name	Weighting	Hurdle	Due
Model comparison essay	50%	No	Week 13
Model description essay	25%	No	Week 5
Alternative approaches to modelling essay	25%	No	Week 9

Model comparison essay

Assessment Type [1]: Essay
Indicative Time on Task [2]: 40 hours
Due: **Week 13**
Weighting: **50%**

Students will submit an 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 processes.
- 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.

Model description essay

Assessment Type [1]: Essay
Indicative Time on Task [2]: 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 processes.
- Apply real-world examples to explain each of the different levels applicable to formal theories of cognition.
- Accurately summarize the core assumptions of formal models by writing a brief description of a model.

Alternative approaches to modelling essay

Assessment Type [1]: Essay
Indicative Time on Task [2]: 20 hours
Due: **Week 9**
Weighting: **25%**

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

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 processes.
- 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.

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[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

Assessments will be delivered to the unit instructor (Erik Reichle) via email.

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). 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). 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 (https://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.