COGS701

Critical Issues in Research in the Cognitive Sciences

S1 Day 2015

Department of Cognitive Science

Contents

General Information

Unit convenor and teaching staff
Convenor
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Australian Hearing Hub, 3rd floor, north side

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Credit points
4

Prerequisites
Admission to MRes

Corequisites

Co-badged status

Unit description
This unit examines the assumptions and methodological issues of the main neuroimaging techniques used in cognitive neuroscience. The course will include lectures by experts in the various methods and student-led analyses of recent papers that use these methods. The aim is to provide students with tools to critically appraise published studies and the inferences made on the basis of neuroimaging data.

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:

This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published

studies and the inferences made on the basis of experimental data.

General Assessment Information

We expect 100% attendance but if there are any issues with attendance, please send us an email in advance of the class to let us know. Students need to read the papers thoroughly on journal club weeks to enable a useful discussion.

Students can email either convenor with clarification or other questions about the assessments, we are happy to discuss essay directions in advance of submission if necessary.

Assessment Tasks

Name	Weighting	Due
Participation	10%	Throughout course
Leading journal club	10%	Depends on topic signed up for
Critical Analysis Of A Paper	30%	2 weeks after leading paper
Critical issues in cog. sci.	50%	1/6/2015

Participation

Due: **Throughout course**
Weighting: **10%**

The course alternates between lectures given by experts and student-led journal club discussions. In both sections there is ample opportunity for students to ask questions, contribute thoughts and participate. For the journal club weeks, all students need to read the selected paper critically and think about the issues, then contribute to the discussion within the group on the day.

On successful completion you will be able to:

- This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published studies and the inferences made on the basis of experimental data.

Leading journal club

Due: **Depends on topic signed up for**

Weighting: **10%**

Each student nominates a topic for which s/he will lead a paper discussion. This involves selecting a paper using the specific technique for the other students in the group to read, reading it critically and preparing, and then leading the student discussion on the day.

On successful completion you will be able to:

- This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published studies and the inferences made on the basis of experimental data.

Critical Analysis Of A Paper

Due: **2 weeks after leading paper**
Weighting: **30%**

This essay is a summary of the critical review of a particular article (usually the one analysed for the presentation, but can be different if the student so chooses).

We will be looking for evidence of:

[1] understanding of the goal, methods, analyses & results of the study

[2] critical and reflective thinking regarding potential issues with the study

[3] writing, clarity, and argument of the essay

On successful completion you will be able to:

- This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published studies and the inferences made on the basis of experimental data.

Critical issues in cog. sci.

Due: **1/6/2015**
Weighting: **50%**

The essay should contain an introductory overview and presentation of a number (perhaps 3-4) of issues that arose during the course across the techniques. Shows understanding of the important issues, why they are important, perhaps examples of papers that have these flaws &

what problems this raises for the authors' interpretation.

(3000 words plus reference list)

We will be looking for evidence of:

[1] critical thinking and understanding of the selected issues

[2] writing, clarity, and argument

On successful completion you will be able to:

- This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published studies and the inferences made on the basis of experimental data.

Delivery and Resources

The required reading for this course will be nominated by students. Recommended readings will be given by lecturers after each lecture. Slides and readings from each lecture will be available on our shared Google Drive.

Unit Schedule

Date	Topic	Lecturer
25/2/15	Overview & experiment design / analysis	Anina Rich
4/3/15	Behavioural papers	Student-led journal discussions
11/3/15	Functional Magnetic Resonance Imaging (fMRI)	Alex Woolgar
18/3/15	fMRI papers	Student-led journal discussions
25/3/15	Electroencephalography (EEG)	Genevieve McArthur
1/4/15	EEG papers	Student-led journal discussions
8/4 & 15/4	Mid semester break	
22/4/15	Magnetoencephalography (MEG)	Mark Williams
29/4/15	MEG papers	Student-led journal discussions

6/5/15	Patient studies: Single case vs group approaches	Lyndsey Nickels
13/5/15	Patient papers	Student-led journal discussions
20/5/15	Neural stimulation	Paul Sowman
27/5/15	Neural stimulation papers	Student-led journal discussions
3/6/15	Summing up	Anina Rich & Alex Woolgar

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of 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/support/student_conduct/

Results

Results shown in *iLearn*, 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.

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 improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

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

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcome

- This unit will examine the assumptions and methodological issues of the main techniques used across the different fields of cognitive science (e.g., neuroimaging, behavioural, and neuropsychological techniques). The course will include lectures by experts in the various techniques and student-led analysis of recent published papers. The learning outcomes will provide students with the tools to critically appraise published studies and the inferences made on the basis of experimental data.

Assessment tasks

- Participation
- Leading journal club
- Critical Analysis Of A Paper
- Critical issues in cog. sci.

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcome

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PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

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PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

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PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcome

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PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcome

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