



COGS700

Foundations of Cognitive Science

S2 Day 2017

Department of Cognitive Science

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General Information

Unit convenor and teaching staff

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Amanda Barnier

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit addresses the conceptual foundations of cognitive science. By covering key questions and issues in the philosophy of science, it addresses the underlying assumptions and implications of science. The unit also covers selected topics in cognitive science from a historical and theoretical perspective. The unit gives the students an overview of the major issues and allows them then to reinforce their knowledge with further discussion and reading. The unit is student-led, involving regular critical evaluation of core material, presentations and analyses of mainstream views, and ongoing discussion. This helps to reinforce the students' learning and allows them to decide on the most pertinent issues to their particular discipline and research area with support and direction from the coordinators.

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:

Acquire a coherent and advanced knowledge of the principles, concepts, and controversies within the discipline of cognitive science.

Successfully identify latent strengths and limitations of current cognitive science research findings and methods.

Develop advanced critical thinking and scientific reasoning skills and learn to apply these

skills to new contexts.

Develop advanced written and oral communication skills, with a focus on the specific communication needs of cognitive science graduates.

General Assessment Information

Attendance Policy

All MRes and PhD students are expected to attend at least 80% of meetings and participate actively in discussions. Mentoring and modelling for junior research students is encouraged and will be especially appreciated. Roll will be taken. If you cannot attend a particular meeting, please email Professor Barnier (amanda.barnier@mq.edu.au) BEFORE the class.

Submission of written work via iLearn

You are required to submit all of your written work via iLearn, using the **Turnitin** submission tool. Please do not email files to the unit convenor. Please use the following step-to-step [guide](#) on how to submit a Turnitin assignment.

Late Penalty

Late submission of an assignment will attract a penalty of 5% of the maximum mark for every day that the assignment is late (including weekend days). For example, if the assignment is worth 40 marks and your assignment is submitted 2 days late, a penalty of $2 \times 5\% \times 40 = 4$ marks will be applied and subtracted from the awarded mark for the assignment. Work submitted more than 14 days after the submission deadline will not be marked and will receive a mark of 0. Requests for extensions must be approved in advance by the unit convenor and/or HDR Director, where appropriate.

Assessment Tasks

Name	Weighting	Hurdle	Due
Critical paper review	20%	No	Weeks 6, 7, 8 or 9
Poster presentation	30%	No	2 November 2017
Essay	50%	No	10 November 2017

Critical paper review

Due: **Weeks 6, 7, 8 or 9**

Weighting: **20%**

Verbally and succinctly summarise and critically comment in class on one reading in Weeks 6, 7,

8 or 9. Approx 10-15 minutes. Submit 2-page (500-word max) dot point summary and evaluation by 5pm Friday of the same week. Graded. Maximum of 1-2 students presenting summary in any week. Allocations to be finalised in Week 2.

On successful completion you will be able to:

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Poster presentation

Due: **2 November 2017**

Weighting: **30%**

Prepare and present poster presentation on a possible analogue study of a clinical condition. Following discussion in class in Week 7 (14 September), choose a clinical condition, design an analogue study and prepare a poster to present it. On your poster describe background, aims, design, hypotheses, hypothetical data, conclusions and value. Present in class in Week 12 (2 November). Submit PDF of Powerpoint by 5pm Friday 3 November. Graded.

On successful completion you will be able to:

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Essay

Due: **10 November 2017**

Weighting: **50%**

Submit a 2000-3000 word essay. Write about one real world problem that Cognitive Science can help answer (e.g., why do some children but not others have problems reading, how can we help

migrant/bilingual kids in the classroom, what's the best way to treat delusions, can we make people more reasonable in their beliefs). Describe the problem and why it is important to solve. Describe the area/s of Cognitive Science that can help. Critically summarise and evaluate current research in these area/s. Suggest next steps that researchers need to take to solve your identified problem. How many generations of research do you think might be needed to solve this problem? When will researchers know they are successful? Due by 5pm Friday 10 November (Week 13). Graded.

On successful completion you will be able to:

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Delivery and Resources

Seminar Discussions

Seminar discussions are held weekly, starting in Week 1 on Thursdays from 1-3PM in the Australian Hearing Hub, Level 3 (3.610).

Readings

You will be expected to have read the *Core Readings* plus at least one *Additional Reading* before each class. For some classes, students will be assigned particular readings to summarise and present to the group. **All readings are available through iLearn and the Library.**

iLearn

You will need access to the internet to access the unit's iLearn page. You are also required to submit assessment tasks via iLearn, using the Turnitin submission tool. If you are not already familiar with these, please allow time to familiarise yourself with how to access iLearn and how to submit a Turnitin assignment.

Recommended resource on academic honesty

The learning skills team at Macquarie University has designed an Academic Integrity Module for you to enrol in to help you learn about

- What "academic integrity" is and why it's important
- Acceptable and unacceptable academic behaviours at university
- What 'plagiarism' is and key strategies to avoid it
- Your responsibilities in relation to academic integrity and your rights under the Macquarie
- University Academic Honesty Policy.

Unit Schedule

Week By Week Schedule:

W	Day	Weekly Topics (see above for relevant readings for each week)
1	3 Aug	<p>What is Cognitive Science? Definitions, core questions and aims, distinctive features, benefits and challenges of interdisciplinarity, course outline and assessments (BARNIER AND KAPLAN)</p> <p>Read Thargard (2014). Read Von Eckardt (2001) or watch one of the You Tube videos.</p>
2	10 Aug	<p>Where Did Cognitive Science Come From (Part I)? Landmarks in the development of our field, personal vs discipline history, generations of research, what questions do cognitive scientists try to answer? (BARNIER)</p> <p>Read Miller (2003) and Gentner (2010). If time, browse the three additional readings on the Chomsky vs Skinner debate.</p>
3	17 Aug	<p>Where Did Cognitive Science Come From (Part II)? Who "belongs" or "lives" in Cognitive Science, how did the field develop in Australia and elsewhere? A conversation with Emeritus Professor Max Coltheart (COLTHEART AND BARNIER)</p> <p>Read Bechtel et al. (2001) and Nadel & Piatelli-Palmarini (2003).</p> <p>COGS301 Summary 1 due Fri 18 Aug 5pm.</p>
4	24 Aug	<p>Levels and Explanation. What "levels" of analysis do cognitive scientists focus on and what can we explain? How do these levels and explanations relate? (KAPLAN, COLTHEART AND BARNIER)</p> <p>Read Kaplan (2015) and Marr (1982).</p>
5	31 Aug	<p>Relating Cognitive and Neural Levels: What if Anything Can Functional Neuroimaging Tell Us About Cognition? A debate! (COLTHEART, KAPLAN, AND BARNIER)</p> <p>Read Bechtel & Richardson (2010) and Coltheart (2010). If time, browse the three "Perspectives on Psychological Science" articles debating this question.</p> <p>COGS301 debate presentations.</p>
6	7 Sep	<p>Models, Hypotheses, and Inferences. What are the nature and limits of our conceptual accounts, what can we conclude, how do we "prove" things? Being mindful of "the gap" (BARNIER)</p> <p>Read Rajaram & Pereira-Pasarin (2010), Blumen et al. (2013), and Barnier et al. (2013).</p> <p>Up to 2 PhD students to lead discussion. 1-2 MRes students to critique reading. COGS301 debate written summary due Fri 8 Sep 5pm.</p>

7	14 Sep	<p>Laboratory Analogues: Likenesses Not Replicas. Modelling clinical conditions in the laboratory, benefits and limitations (POLITO AND KAPLAN)</p> <p>Read Bortolotti et al. (2011) and Woody & Szechtman (2011).</p> <p>Up to 2 PhD students to lead discussion. 1-2 MRes students to critique reading.</p>
MID-SEMESTER BREAK		
8	5 Oct	<p>The Power of Converging Evidence. Strengths of converging evidence, triangulating from multiple approaches (HARRIS AND BARNIER)</p> <p>Read Barnier et al. (2008) and Harris et al. (2010).</p> <p>Up to 2 PhD students to lead discussion. 1-2 MRes students to critique reading.</p>
9	12 Oct	<p>Fundamentals of Research Design. How do we turn assumptions and approaches into successful experiments, what mistakes do we make, generations of research questions? (BARNIER)</p> <p>Read Simons et al. (2016) and one additional paper on research design.</p> <p>Up to 2 PhD students to lead discussion. 1-2 MRes students to critique reading. COGS301 Summary 2 due Fri 13 Oct 5pm.</p>
10	19 Oct	<p>Current Burning Questions in Cognitive Science. A group of talented postdocs in Cognitive Science share their current scientific and practical puzzles and how they are solving them (BADCOCK, BEYERSMANN, CARUANA, HE, POONIAN, STONE, WANG AND KAPLAN)</p> <p>Explore the work of at least one of the postdoc researchers. Start with their webpage and read one of their recent articles and one of their popular press pieces.</p>
11	26 Oct	<p>Frontiers of Cognitive Science. What are the next big questions in Cognitive Science? How will we answer them? (BARNIER)</p> <p>Read Adolphs (2015), Seth (2012) and Vergano (2013).</p>
12	2 Nov	<p>Presentations and Course Wrap-Up. What is Cognitive Science (revisited)? (BARNIER AND KAPLAN)</p> <p>No readings.</p> <p>MRes students to present posters. Powerpoint due Fri 3 Nov 5pm.</p>
13	9 Nov	<p>No Meeting</p> <p>No readings.</p> <p>MRes and COGS301 students' essays due Fri 10 Nov 5pm.</p>

Learning and Teaching Activities

Learning and Teaching Strategy

The course will involve a range of teaching approaches, including: (1) discussions lead by the Convenors, other teaching staff, other students, and/or by you; (2) analysis of theory or research articles lead by the Convenors, other teaching staff, other students, and/or by you; (3) presentations by the Convenors, other teaching staff, other students, and/or by you; and (4)

group activities.

Co-Location and Class Participation

COGS700 will be co-located with COGS301. We also will have Cognitive Science PhD students in the class. We will facilitate interactions within and across these cohorts. We will identify our PhD, MRes, and 301 cohorts and we will set up cross cohort groups of mixed PhD, MRes, and 301 students. You are expected to read a selection of the prescribed articles (detailed in "Delivery and Resources" and "Unit Schedule" sections above). Student Meetings will be conducted on the assumption that you have already read the appropriate material for that class. You will be expected to contribute to the class discussions and group activities.

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_2016.html

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

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

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://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.

Graduate Capabilities

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 outcomes

- Acquire a coherent and advanced knowledge of the principles, concepts, and controversies within the discipline of cognitive science.
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- Develop advanced critical thinking and scientific reasoning skills and learn to apply these skills to new contexts.
- Develop advanced written and oral communication skills, with a focus on the specific communication needs of cognitive science graduates.

Assessment tasks

- Critical paper review
- Poster presentation
- Essay

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:

Learning outcomes

- Successfully identify latent strengths and limitations of current cognitive science research findings and methods.
- Develop advanced critical thinking and scientific reasoning skills and learn to apply these skills to new contexts.

Assessment tasks

- Critical paper review
- Poster presentation
- Essay

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:

Learning outcomes

- Successfully identify latent strengths and limitations of current cognitive science research findings and methods.
- Develop advanced critical thinking and scientific reasoning skills and learn to apply these skills to new contexts.

Assessment tasks

- Poster presentation

- Essay

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

- Develop advanced written and oral communication skills, with a focus on the specific communication needs of cognitive science graduates.

Assessment tasks

- Critical paper review
- Poster presentation
- Essay