

University of Nottingham, School of Psychology
MSc in Cognitive Neuroscience and Neuroimaging
Handbook for the Academic Year 2008/2009

The course provides interdisciplinary research training in brain imaging methods, delivered through lectures and hands-on research project work, with access to specialist equipment for non-invasive studies of the brain - such as devices for magnetic resonance imaging (MRI), magnetoencephalography (MEG), electroencephalography (EEG) and event-related potentials (ERP), and transcranial magnetic stimulation (TMS) – or to data acquired with such equipment.

The programme covers all stages of research -- experimental design, choice of method to match the research question, development of experimental setup, data acquisition (including behavioural data to correlate with brain activity), effective data evaluation, advanced statistics, and interpretation and dissemination of results.

Course Structure

The course comprises 180 credits, corresponding to a total of 1800 hours of students' effort. For example, a 15-credit module comprises one 2-hour lecture in each of the 11 term weeks. Taught modules, workshops, and seminars comprise 100 credits. Placement and project comprise 80 credits. The course extends over one year full-time or two year part-time. Taught modules are delivered in semester one (autumn) and semester two (spring).

Code	Title	Credits Autumn	Credits Spring	Credits Aut' or spring	Credits Summer break	Assessment (1)	Mod' con-venor
C84BIM	Brain Imaging Methods based on MRI	15				Written examination (essays), 2 hours	MS
C84EBM	Electrophysiological and Behavioural Methods	15				Written examination (essays), 2 hours	MS
C84LCN	Cognitive Neuroscience	15				Research plan, presented in seminar	DJS
C84CPR	Computer programming for stimuli and analysis with demonstration of fMRI/MEG data analysis packages		15			EITHER example program script OR analysis of example data	MS
C84SEM	School of Psychology Seminar Series			10		2 x 1000-word report summarizing 2 talks of student's choice	MS
C84ANM	Analytical Research Methods		10			To be confirmed	MS
C8DPRP	Professional and ethical issues in research and practice		10			2 x 2000-word essay	(2)
C84RPS	Graduate School programme: Research and Personal Development Skills			10		Portfolio: reflection on graduate school courses	
C84RPL	Research Placement		20			Presentation in seminar	MS
C84PRO	Research Project				60	8000-word report	MS

(1) For details about assessment, please see the module catalogue
http://winster.nottingham.ac.uk/modulecatalogue/asp/main_search.asp

Module convenors: MS, Dr Martin Schürmann, martin.schuermann@nottingham.ac.uk
DJS, Dr Deborah Serrien, deborah.serrien@nottingham.ac.uk
(2) Dr P Leather, Dr A Santos, Inst' Work, Health, and Organizations

For the schedule of lectures and further details please see
<http://www.psychology.nottingham.ac.uk/staff/mxs/MScCognNeurosciNeuroimaging>

Assessment criteria and Progression Information

This programme will comply with the University Regulations for Taught Masters Degrees, which can be found at <http://www.nottingham.ac.uk/quality-manual/study-regulations/taught-postgraduate-regulations.htm>

Students will normally be required to have achieved a pass level (50%) in 80 taught credits (out of 120, i.e. the credit sum across all modules except C84PRO) before they can proceed to the research project stage.

Information on the marking criteria used by the School can be found at <http://www.nottingham.ac.uk/psychology/for-current-students/courses/marketing-scheme.php>
These criteria will provide students with clear guidance on the performance required to obtain marks at various levels (e.g. 70%+, 60-70, 50-60, 40-50).

The Masters' degree will be awarded with Merit to students who achieve a final credit-weighted mark of at least 60% and with Distinction to students who achieve a final credit-weighted mark of at least 70%. For a Distinction to be awarded, either (a) a mark of at least 70% must be gained in the project stage or (b) an average mark of at least 70% must be gained in the taught stage.

The borderline threshold for a Merit is set at 58%, and the borderline threshold for a Distinction is set at 68%. Borderline cases will be decided by a board of examiners who will take into account the following:

- A) any extenuating circumstances which have been correctly documented
- B) the overall profile of the candidate's marks, for example a rising profile

Other Regulations

Students who have successfully completed the **Home Office Licensee Training Course** offered by the Biomedical Services will receive accreditation of prior learning to replace module **Professional and ethical issues in research and practice**.

A. Learning Outcomes

Knowledge and understanding

The aims of the programme are to equip students with

A1 a comprehensive knowledge of brain imaging methods

A2 a thorough understanding of optimal experimental design to realize the full potential of brain imaging methods and psychophysical methods for cognitive neuroscience studies

A3 the basic scientific principles that underlie human cognitive neuroscience

Intellectual skills

The aims of the programme are to qualify students to

B1 critically appraise, analyse, and summarize information related to brain imaging, taking into account the provisional nature of facts and principles in cognitive neuroscience

B2 be familiar with scientific methods, including the ability to collect and integrate information from the literature, to design experiments, execute experimental investigations or other relevant methods for testing a hypothesis

B3 undertake independent, self-directed research, taking into account ethical considerations

B4 apply knowledge in brain imaging and human cognitive neuroscience to address familiar and unfamiliar problems in neuroscience

B5. acquire, interpret and critically analyse brain imaging data

Professional/Practical Skills

The aims of the programme are to prepare students to

C1 design and carry out appropriate experiments or procedures to test a hypothesis, including practical skills such as programming for stimulus setup and analysis

C2 collect, record and analyse data from accurate observations and measurements

C3 be familiar with health and safety issues related to brain imaging

C4 work safely in a laboratory environment (with a focus on the particular brain imaging method chosen for the student's project)

Transferable (key) skills

The aims of the programme are to enable students to

D1 systematically search for literature and evaluate brain imaging-based research and to draw justified conclusions from the evidence

D2 communicate knowledge or arguments (both orally and in writing) to a variety of audiences and to evaluate the views of others

D3 use electronic information systems to analyse data and to retrieve and communicate information

D4 learn and work independently or as a member of a laboratory team with the ability to reflect on performance so that help and advice can be sought when necessary

Teaching and Learning for all sections (summarised)

The course comprises a range of teaching styles such as lectures, tutor-led and self-guided exercises in computer programming and software use, guided reading, seminars, and student-led presentations. Transferable skills are embedded within all aspects of the programme, such as the self-learning requirement (outcome D1, D3, D4) and personal reflection (outcomes D2, D4). To ensure that knowledge, understanding or skills have been gained, the course relies on a *range of assessment methods* — word-limited essays as coursework or in examinations, individual verbal presentations, coursework, and project reports — for all of which the students learn to prepare.

Academic Year 2008-2009

Syllabus Plus Week Numbers

Syllabus Plus Timetable Week	Teaching Week	Week Commencing	Comments
1	1	22/09/08	Autumn teaching START 25/09/08
2	2	29/09/08	Autumn Semester
3	3	06/10/08	Autumn Semester
4	4	13/10/08	Autumn Semester
5	5	20/10/08	Autumn Semester
6	6	27/10/08	Autumn Semester
7	7	03/11/08	Autumn Semester
8	8	10/11/08	Autumn Semester
9	9	17/11/08	Autumn Semester
10	10	24/11/08	Autumn Semester
11	11	01/12/08	Autumn Semester
12	12	08/12/08	term finishes Friday 12/12/08
13	Vacation	15/12/08	Christmas
14	Vacation	22/12/08	Christmas
15	Vacation	29/12/08	Christmas
16	Vacation	05/01/09	Christmas
17	Assessment	12/01/09	Assessment
18	Assessment	19/01/09	Assessment
19	1	26/01/09	Spring Semester
20	2	02/02/09	Spring Semester
21	3	09/02/09	Spring Semester
22	4	16/02/09	Spring Semester
23	5	23/02/09	Spring Semester
24	6	02/03/09	Spring Semester
25	7	09/03/09	Spring Semester
26	8	16/03/09	Spring Semester
27	Vacation	23/03/09	Easter
28	Vacation	30/03/09	Easter
29	Vacation	06/04/09	Easter
30	Vacation	13/04/09	Easter
31	9	20/04/09	Spring Semester
32	10	27/04/09	Spring Semester
33	11	04/05/09	Spring Semester
34	12	11/05/09	Revision/Assessment set-up starts on Wednesday 13/05/09
35	Assessment	18/05/09	Assessment
36	Assessment	25/05/09	Assessment
37	Assessment	01/06/09	Assessment
38	-	08/06/09	-
39	-	15/06/09	Term finishes Friday 19/06/09
40		22/06/09	
41		29/06/09	
42		06/07/09	
43		13/07/09	
44		20/07/09	
45		27/07/09	
46		03/08/09	
47		10/08/09	
48	Assessment	17/08/09	Resit Period
49	Assessment	24/08/09	Resit Period
50	Assessment	31/08/09	Resit Period
51	Assessment	07/09/09	Resit Period
52		14/09/09	

WHO's WHO in the School of Psychology (edited from the Postgraduate Training Handbook)

		Tel Extn	RM	E- mail (1)	Responsibilities
Head Of School	Prof Peter Mitchell	15286	435d	plm	
Head Of School's PA	Viv Kirk	66966	438	vmk	A point of contact for Head of School
Finance Manager (Research Office)	Deborah Cartledge	15303	345	dc	Finance, purchasing and expenses, grants
Postgraduate Student Advisor	Dr Peter Chapman	15562	312	prc	Admissions, progression and administration of research students
Deputy Postgraduate Student Advisor	Dr Walter van Heuven	67369		wvh	as above
MSc in Cognitive Neuroscience and Neuroimaging	Dr Martin Schürmann Dr Deborah Serrien	67922	332	mxs djs	Admissions and progression for MSc course
Director Of Administration	Victor Cipko	15301	325	vc	Head of admin teams
Postgraduate Psychology Admin (School office)	Charlotte Langham	15218		crl	Research students
	Martin Lockey	67238		mel	Ed Psyc, D.App.Psych. Diploma in Psychology (Conversion Course), MSc in Cognitive Neuroscience and Neuroimaging
Teaching & Learning Committee	Charlotte Langham (sec)	15218	345	crl	Teaching quality (undergraduate and postgraduate)
	Victor Cipko	15301	325	vc	
	Dr Robin Stevens (chair)	15296	329b	rgs	
	Dr David Crundall	15297	311	dec	
	Dr Pete Bibby	15329	430	pal	
	Prof Tim Ledgeway	67343	442	txl	
	Prof Peter Mitchell	15286	435d	plm	
	Dr Claire Lawrence	15326	327	cl	
	Dr Jonathan Stirk	15330	428	jas	
Dr Richard Tunney	15323	304	rjt		
Examinations Officer	Dr Jonathan Stirk	153301	428	jas	

(1) email xxx@psychology.nottingham.ac.uk or see <http://www.nottingham.ac.uk/psychology/people/index.php>

WHO's WHO continued

		Tel Extn	RM	E- mail*	Responsibilities
Computing Staff	Chris Chew Lee Melton Alexia Melling Stephnee Lindberg	15291 15321	203a 203b	chc ljm axm sxl	IT manager (Macs) PCs
Chair Computing Committee	Dr Tim Ledgeway	67343	442	txl	
Technical Manager	Andy Smith	15299	101	aks	Mechanical equipment, audio and video facilities
Undergraduate Psychology Admin (School Office)	Charlotte Langham	15218		crl	Undergraduate School Administrator
Disability Liaison	Andy Smith	15299	101	aks	
Health And Safety, Security	Andy Smith	15299	101	aks	
Statistics Advice	Dr Peter Bibby Prof Eamonn Ferguson	15329 15327	430 329a	pal ef	Useful people to know for tricky stats problems! (Your first port of call should be your project supervisor)
Questionnaires and surveys	Prof Eamonn Ferguson	15327	329a	ef	Useful to ask about designing questionnaires
Programming advice (Macs)	Prof Claire O'Malley Dr Peter Bibby Dr Robin Stevens Dr Linda Bowns	15293 15329 15296 15283	319 430 329b 441	com pal rgs lbowns	Useful to ask about Mac programming problems (Your first port of call should be your project supervisor)
Programming advice (PCs)	Dr Robin Stevens	15293	329b	rgs	Useful to ask about PC programming problems (Your first port of call should be your project supervisor)
Research participants (children)	Dr Nikki Pitchford	15287	454a	njp	Useful to ask about access to infants, primary and secondary schools
Research participants (adults)	Dr Ellen Townsend	67303	423		Contact about recruiting participants Ellen.Townsend@nottingham.ac.uk
Ethics Committee	Victor Cipko (chair) Angela Gillett (admin)	15301 15306	325 345	vc axg	All research projects must have approval by the Ethics Committee. Proposals should be passed to Angela Gillett, Research Support Office.

(1) email xxx@psychology.nottingham.ac.uk or see <http://www.nottingham.ac.uk/psychology/people/index.php>

Important telephone numbers

Departmental **Fax** (based in School Office) 0115 951 5324 (external), 15324 (internal).

University **telephone** switchboard is 0115 951 5151, or 0 for internal.

School Office **Telephone** is 0115 951 5361, or 15361 for internal.

In the case of **emergency** you should dial **8888** from any internal phone.

Amendment 2008-11-06

Assessment for C84LCN, Research Plan – presented in seminar

The research plan will typically relate to one of the areas of Cognitive Neuroscience that have been introduced in the C84LCN lectures. The plan will cover a research question in terms of

- background (based on literature review),
- hypothesis,
- choice of method and its justification (for example: EEG or fMRI, and why)
- experimental design and parameters of the method (for example: block design or event-related design in fMRI, and why)
- predicted results and their relevance to the hypothesis.

The presentation (in a seminar room with data projection facilities) will be of approximately 10 minutes duration, with a further 10 minutes for questions. Students might be asked to justify their design choices. What is expected is a general understanding of the design options, not necessarily at the level of detail that would be given in a research article. Students also have to hand in a written outline of the plan (max. 2 pages including 5 to 10 references, for example).

Assessment is based on all three elements - presentation, answers to questions, and abstract.

Amendment 2008-11-06

Assessment for C84SEM, 2 x 1000-word report summarizing 2 talks of student's choice

Each 1000-word report needs to summarize the contents of the seminar talk. It is recommended that students also review some of the research articles that the talk relates to (either a selection of the seminar speaker's articles or articles mentioned as background). An optimal report would also include the student's own critical evaluation of the seminar contents.

Amendment 2008-12-11

Assessment for C84LCN, Research Plan – presented in seminar

The duration of the presentation will be approximately 10 minutes, with a further 5 (not 10) minutes for questions.