University of Nottingham, School of Psychology

MSc in Cognitive Neuroscience and Neuroimaging

Handbook for the Academic Year 2011/2012

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 parttime. Taught modules are delivered in semester one (autumn) and semester two (spring).

For the schedule of lectures, for updates to this handbook, and for further details please visit the "MSc webpage" from time to time:

http://www.psychology.nottingham.ac.uk/staff/mxs/MScCognNeurosciNeuroimaging

Code	ode Title Credits: AUTumn, SPRing,		Assessment [1], likely (!) date of exam or coursework				
		Year-Long, SUMmer			submission (date subject to change)	con-	
		AUT	SPR	YL	SUM		venor
C84	Brain Imaging Methods	15				Written examination (essays), 2 hours, January exam	MS
BIM	based on MRI					period	
C84	Electrophysiological and	15				Written examination (essays), 2 hours, January exam	MS
EBM	Behavioural Methods					period	
C84	Cognitive Neuroscience	15				Presentation (with written abstract) of research plan in	MS
LCN						seminar, 10 min + 5 min discussion (10 out of 15	
						credits) AND 1500-word research proposal (5 out of 15 credits) [2a] [2b] [3], end of January	
C84	Neuroimaging Practicals			20		1500-word essay on experimental design (5 out 20	
NIM	with MATLAB course					credits) AND coursework: discussion of program script	
						and analysis of example data (15 out of 20 credits), to	
						be announced	
C84	School of Psychology			10		2 x 1000-word report about 2 talks of student's choice	MS
SEM	Seminar Series					[4] [9], end of March	
C84	Analytical Research		10			Coursework: Analysis of example data set, to be	MS
ANM	Methods					announced	
C84	Ethical issues in			15		(a) Portfolio: reflection on graduate school courses, (b)	MS
ERP	Cognitive Neuroscience,					lay summary of research proposal, and (c) project	
	Personal Development,					summary as if for ethics evaluation [8], end of March	
C94	And Research Discomont		20			Procentation in comingr 10 min + 5 min discussion	MC
DDI	Research Flacement		20			AND - depending on project topic - either (a) 2000-	IVIS
						word essay (on which feedback will be given) [3] [5] [7]	
						[9] or (b) analysis of neuroimaging sample dataset.	
						well before end of summer term	
C84	Research Project				60	8000-word report [5] [6] [7] [9], end of August	MS
PRO	,						

[1] For assessment criteria and marking scheme, please see *http://www. nottingham.ac.uk/psychology/forcurrentstudents/courses/marking-scheme.aspx* For further details on assessment, please see the module catalogue *http://winster.nottingham.ac.uk/modulecatalogue/asp/main_search.asp* [2a] 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 (a) background (based on literature review), (b) hypothesis, (c) choice of method and its justification (for example: EEG or fMRI, and why), (d) experimental design and parameters of the method (for example: block design or event-related design in fMRI, and why), (e) predicted results and their relevance to the hypothesis. Questions after the presentation (in a seminar room with data projection facilities) might relate to design choices, for example (at a level of general understanding of the design options, not necessarily at the level of detail that would be given in a research article).

[2b] The C84LCN research proposal is for assessment purposes only and does not normally translate into actual research work in the course of the MSc year, i.e. the C84LCN research proposal is NOT preparatory work for the C84RPL research placement or for the C84PRO research project. The topic of the C84LCN research proposal has to be different from C84RPL and C84PRO topics (although they can all be in the same general area, if desired).

[3] Assessment is based on presentation in seminar, answers to questions, and outline/essay.

[4] Each 1000-word report needs to summarize the contents of the seminar talk. Rather than copying the speaker's structure, students need to review some of the speaker's articles and/or background articles (for example those mentioned by the speaker). Please include these articles in a reference list (for example, 5 to 10 items). Importantly, a good report would also include some criticism of what the speaker presented (for example, developed from the questions that the audience asks after the seminar) and the student's own critical evaluation of the seminar contents. A limited number of diagrams can be useful.

[5] Because scientific results frequently reflect co-operation in a research group, students are kindly requested to be clear about the extent of their contribution to experiments and results reported and about work that has been previously done in the research group (be it published or not). Please explain your contribution in a short paragraph on a separate page at the end of the report.

[6] Topics for research projects will be announced on the intranet (for example in early November), and a specific introduction to project work with questions and answers will be offered in November

[7] Please note guidelines on plagiarism:

<u>http://www.nottingham.ac.uk/shared/shared_psychology/pdf/School_Plagiarism.pdf</u> The Psychology School Office Students is going to inform students about the procedure for electronic submission to the plagiarism website (applies to C84RPL essay, C84PRO report).

[8] Students on the MSc course choose from recommended Graduate School courses. In addition to these, the University offers further courses: <u>http://www.nottingham.ac.uk/csc</u>

[9] Where word count limits are given for essays, coursework, practical reports etc in School of Psychology, you do not have to include the references (unless explicitly specified othwerwise). Students occasionally ask whether there is something like a "10% leniency on word counts". Texts that exceed the specified word count by 10% are not automatically considered too long. However, please keep in mind that irrelevant material added to the text will decrease the overall mark (regardless of word count).

Module convenors: MS, Dr Martin Schürmann, *martin.schuermann@nottingham.ac.uk*

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/forcurrentstudents/courses/marking-scheme.aspx* 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 creditweighted mark of at least 60% and with Distinction to students who achieve a final creditweighted 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 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 2011-2012

Syllabus Plus Week Numbers

Syllabus Plus Teaching		Week	Commonto	
Timetable Week	Week	Commencing	Comments	
1	1	26/09/11	Autumn teaching START 29/09/11	
2	2	03/10/11	Autumn Semester	
3	3	10/10/11	Autumn Semester	
4	4	17/10/11	Autumn Semester	
5	5	24/10/11	Autumn Semester	
6	6	31/10/11	Autumn Semester	
7	7	07/11/11	Autumn Semester	
8	8	14/11/11	Autumn Semester	
9	9	21/11/11	Autumn Semester	
10	10	28/11/11	Autumn Semester	
11	11	05/12/11	Autumn Semester	
12	12	12/12/11	term finishes Friday 16 Dec	
13	Vacation	19/12/11	Christmas	
14	Vacation	26/12/11	Christmas	
15	Vacation	02/01/12	Christmas	
16	Vacation	09/01/12	Christmas	
17	Assessment	16/01/12	Assessment	
18	Assessment	23/01/12	Assessment	
19	1	30/01/12	Spring Semester	
20	2	06/02/12	Spring Semester	
20	3	13/02/12	Spring Semester	
21	4	20/02/12	Spring Semester	
22	5	27/02/12	Spring Semester	
25	6	05/03/12	Spring Semester	
25	7	12/03/12	Spring Semester	
25	/ 	12/03/12	Spring Semester	
20	<u> </u>	26/03/12	Spring Semester	
27	Vacation	02/04/12	Faster	
20	Vacation	02/04/12	Easter	
30	Vacation	16/04/12	Easter	
31	Vacation	23/04/12	Faster	
32	10	30/04/12	Spring Semester	
52	10	50/04/12		
33	11	07/05/12	(Monday this week is May Bank Holiday)	
34	12	14/05/12	Revision/Assessment	
35	Assessment	21/05/12	Assessment	
36	Assessment	28/05/12	Assessment	
37	Assessment	04/06/12	Assessment (Monday & Tuesday this week are Diamond Jubilee Holidays)	
38	-	11/06/12	Monday & Tuesday may be given for Assessment	
39	-	18/06/12	term finishes Friday 22 June	
40		25/06/12		
41		02/07/12		
42		09/07/12		
43		16/07/12		
44		23/07/12		
45		30/07/12		
46		06/08/12		
47		13/08/12		
48	Assessment	20/08/12	Resit Period	
49	Assessment	27/08/12	Resit Period	
50		03/09/12		
51		10/09/12		
52		17/09/12		

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

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http://www.nottingham.ac	all addresses see uk/psychology/people/index.aspx	
		Responsibilities
Head Of School	Prof Paul McGraw	
Head Of School's PA	Viv Kirk	A point of contact for Head of School
Finance Manager (Research Office)	Deborah Cartledge	Finance, purchasing and expenses, grants
Director of Postgraduate Studies and Postgraduate Student Advisor	Dr Peter Chapman	Admissions, progression and administration of research students
Deputy Postgraduate Student Advisor	Dr Walter van Heuven	as above
MSc in Cognitive Neuroscience and Neuroimaging	Dr Martin Schürmann Dr Deborah Serrien	Admissions and progression for MSc course
Director Of Administration	Victor Cipko	Head of admin teams
Postgraduate Psychology Admin (School office)	Charlotte Langham Martin Lockey	Research students (PhD programme MSc in Cognitive Neuroscience and Neuroimaging , Ed Psyc, D.App.Psych. Diploma in Psychology (Conversion Course)
Teaching & Learning Committee	Charlotte Langham (sec)	Teaching quality (undergraduate and postgraduate)
Director of Teaching	Dr Jonathan Stirk	
Computing Staff	Chris Chew Lee Melton Alexia Melling Stephnee Lindberg	IT manager (Macs) PCs
Technical Manager	Andy Smith	Mechanical equipment, audio and video facilities
Disability Liaison	Andy Smith	
Health And Safety, Security	Andy Smith	
Ethics Committee	Alan Sunderland (chair) Helen Falconer (admin)	see All research projects must have approval by the Ethics Committee. Proposals should be passed to Helen Falconer, Research Support Office.

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