

University of Nottingham, School of Psychology
MSc in Cognitive Neuroscience and Neuroimaging
Handbook for the Academic Year 2009/2010

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).

For the schedule of lectures and further details please visit this page from time to time:
<http://www.psychology.nottingham.ac.uk/staff/mxs/MScCognNeurosciNeuroimaging>

Code	Title	Credits Aut'	Credits Spring	Credits Aut' or spring	Credits Summer break	Assessment [1], <i>likely (!) date of exam or coursework submission (date subject to change)</i>	Mod' con-venor
C84 BIM	Brain Imaging Methods based on MRI	15				Written examination (essays), 2 hours, <i>January exam period</i>	MS
C84 EBM	Electrophysiological and Behavioural Methods	15				Written examination (essays), 2 hours, <i>January exam period</i>	MS
C84 LCN	Cognitive Neuroscience	15				Research plan, presented in seminar, 10 min + 5 min discussion, and 2-page outline of research plan with references [2] [3], <i>end of January</i>	DJS
C84 CPR	Computer programming for stimuli and analysis with demonstration of fMRI/MEG data analysis packages		15			Coursework: Discussion of program script and analysis of example data, <i>to be announced</i>	MS
C84 SEM	School of Psychology Seminar Series			10		2 x 1000-word report about 2 talks of student's choice [4] [9], <i>end of spring term</i>	MS
C84 ANM	Analytical Research Methods		10			Coursework: Analysis of example data set, <i>to be announced</i>	MS
C8D PRP	Professional and ethical issues in research and practice		10			as required by Inst' of Work, Health and Organizations	[S]
C84 RPS	Graduate School programme: Research and Personal Development Skills			10		(a) Portfolio: reflection on graduate school courses, (b) lay summary of research proposal, and (c) project summary as if for ethics evaluation [8], <i>end of spring term</i>	
C84 RPL	Research Placement		20			Presentation in seminar, 10 min + 5 min discussion and 2000-word essay (on which feedback will be given) [3] [5] [7] [9], <i>well before end of summer term</i>	MS
C84 PRO	Research Project				60	8000-word report [5] [6] [7] [9], <i>end of August</i>	MS

[1] Assessment criteria and marking scheme **for all modules except C8DPRP** are explained here: <http://www.nottingham.ac.uk/psychology/forcurrentstudents/courses/marking-scheme.aspx> (for C8DPRP criteria, please ask module convenors). For further details on assessment, please see the module catalogue http://winster.nottingham.ac.uk/modulecatalogue/asp/main_search.asp

[2] 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).

[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 without just copying the speaker's structure. It is recommended that students also review some of the research articles that the talk relates to (seminar speaker's articles or articles mentioned as background, possibly beyond the references in the seminar). A good report would also include 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 programme work with questions and answers will be offered in November

[7] Please note guidelines on plagiarism: http://www.nottingham.ac.uk/shared/shared_psychology/pdf/School_Plagiarism.pdf 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 normally attend a standard package of Graduate School courses. In addition to these, the University offers further courses: <http://www.nottingham.ac.uk/csc>

[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 otherwise). 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
DJS, Dr Deborah Serrien, deborah.serrien@nottingham.ac.uk
[§] Dr P Leather, Dr A Santos, Inst' Work, Health, and Organizations

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/markingscheme.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 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.

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

for room numbers and email addresses see http://www.nottingham.ac.uk/psychology/people/index.php		<i>Tel Extn</i>	Responsibilities
Head Of School	Prof David Clarke	15286	
Head Of School's PA	Viv Kirk	66966	A point of contact for Head of School
Finance Manager (Research Office)	Deborah Cartledge	15303	Finance, purchasing and expenses, grants
Postgraduate Student Advisor	Dr Peter Chapman	15562	Admissions, progression and administration of research students
Deputy Postgraduate Student Advisor	Dr Walter van Heuven	67369	as above
MSc in Cognitive Neuroscience and Neuroimaging	Dr Martin Schürmann Dr Deborah Serrien	67922	Admissions and progression for MSc course
Director Of Administration	Victor Cipko	15301	Head of admin teams
Postgraduate Psychology Admin (School office)	Charlotte Langham	15218	Research students
	Martin Lockey	67238	Ed Psyc, D.App.Psych. Diploma in Psychology (Conversion Course), MSc in Cognitive Neuroscience and Neuroimaging
Teaching & Learning Committee	Charlotte Langham (sec)	15218	Teaching quality (undergraduate and postgraduate)
	Victor Cipko		
	Dr Robin Stevens (chair)	15301	
	Dr David Crundall	15296	
	Dr Pete Bibby		
	Prof Tim Ledgeway	15297	
	Dr Claire Lawrence	15329	
	Dr Jonathan Stirk	67343	
	Dr Richard Tunney	15326	
		15330	
		15323	
Examinations Officer	Dr Jonathan Stirk	15301	

(1) for email addresses see <http://www.nottingham.ac.uk/psychology/people/index.php>

WHO's WHO continued

for room numbers and email addresses see http://www.nottingham.ac.uk/psychology/people/index.php		Tel Extn	Responsibilities
Computing Staff	Chris Chew Lee Melton Alexia Melling Stephnee Lindberg	15291 15321	IT manager (Macs) PCs
Chair Computing Committee	Dr Tim Ledgeway	67343	
Technical Manager	Andy Smith	15299	Mechanical equipment, audio and video facilities
Undergraduate Psychology Admin (School Office)	Charlotte Langham	15218	Undergraduate School Administrator
Disability Liaison	Andy Smith	15299	
Health And Safety, Security	Andy Smith	15299	
Statistics Advice	Dr Peter Bibby Prof Eamonn Ferguson	15329 15327	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	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	Useful to ask about Mac programming problems (Your first port of call should be your project supervisor)
Programming advice (PCs)	Dr Robin Stevens	15293	Useful to ask about PC programming problems (Your first port of call should be your project supervisor)
Research participants (children)	Dr Nikki Pitchford	15287	Useful to ask about access to infants, primary and secondary schools
Research participants (adults)	Dr Ellen Townsend	67303	Contact about recruiting participants
Ethics Committee	Victor Cipko (chair) Angela Gillett (admin)	15301 15306	All research projects must have approval by the Ethics Committee. Proposals should be passed to Angela Gillett, Research Support Office.

(1) for email addresses 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.