

**MODULE APPROVAL FORM**  
**SECTION 1 – THE MODULE SPECIFICATION**

<b>1. Module title</b>	B3 Developmental Neurobiology research			
<b>2. Is this module also available for Study Abroad students</b>	<del>Yes</del>	No		
<b>3. Module code</b> <b>For King's students</b> <b>For Study Abroad students if different</b>	7PAMNNB3			
<b>4. Subject area</b>				
<b>5. Credit level (tick one box only)</b>	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input checked="" type="checkbox"/> 7√
<b>6. Credit value (tick one box only)</b>	<input type="checkbox"/> 15	<input checked="" type="checkbox"/> 30√	<input type="checkbox"/> 45	<input type="checkbox"/> 60
<b>M Level only</b>	<input type="checkbox"/> 20	<input type="checkbox"/> 40	<input type="checkbox"/> 90	
<b>7. Teaching institution (if not King's College)</b>				
<b>8. Proposing department</b>	MRC Centre for Developmental Neurobiology, Guy's Campus			
<b>9. Module organiser and contact details</b>	Dr Robert Hindges 020 7848 8157 robert.hindges@kcl.ac.uk			

**10. Educational aims of the module**

The module is one of several taught modules on the MSc Neuroscience and will further develop the students' knowledge of developmental neurobiology gained from the compulsory modules in fundamental neuroscience, especially module A2. By focusing on current research in this area, the module will also enhance the student's understanding of research methods and so improve their ability to undertake a successful MSc research project. It will place a strong emphasis on enabling students to critically appraise the relevant scientific literature and will introduce them to the wide range of model systems that are used in developmental neurobiological research, to evaluate the associated protocols and different experimental designs and then to analyse the resulting data. The module will be compulsory for those students wishing to specialise in this subject area

The aim is to develop the student's ability to understand and to interpret scientific literature specific to research in developmental neurobiology. Students completing this module in combination with Module C3 Research Project in Developmental Neurobiology will be equipped to make an informed career choice, either in further postgraduate education (eg PhD) or employment related to developmental neurobiology.

Alternatively, students may wish to choose a research project in a different subject area leading to an understanding of research activities in two neuroscience fields.

**11. Learning outcomes of the module (these need to take account of the generic level descriptors)**

After completing this module, successful students will have a good understanding of contemporary research into developmental neurobiology: ranging from the formation of neurons to the development of functional neuronal circuits. They will be able to assess the appropriate model systems and techniques for studying neurogenesis, CNS patterning, axon guidance, neuronal signaling pathways, formation of neuronal circuits and a knowledge of the interactions between these developmental processes. They will also have an understanding of stem cell development and differentiation. Students will also be able to critically appraise the scientific literature relating to developmental neurobiology and stem cell biology.

These aspects of the taught research module will enable them to make an informed choice of research project either in the same or a different subject area, depending on each student's individual pathway, a more informed choice of their research project module and better equip them to decide their future career.

- (i) *Neural induction.* The student will be able to understand how cells become set aside to form the nervous system. They will become familiar model organisms that illuminate this process and the molecular mechanisms that regulate it.
- (ii) *Neurulation.* The student will be able to describe the mechanisms that regulate folding and closure of the neural tube and their significance in human disease e.g. spina bifida.
- (iii) *Patterning and neurogenesis.* The student will understand how the nervous system is subdivided into regions, each with a distinct identity and how this information impacts upon cell fate and differentiation decisions.
- (iv) *The peripheral nervous system.* The student will understand the contribution of neural crest and placodes to the formation of the peripheral nervous system and how their development is regulated
- (v) *Coordinating neural development with the development of non-neural tissues.* Focusing primarily on the development of the head, the student will understand how the developing nervous system interacts with non-neural tissues, including muscle to develop in a coordinated manner.
- (vi) *Neuronal migration and axon guidance.* The student will understand the molecular mechanisms regulating axon guidance and correct target choice.
- (vii) *Connectivity.* The student will understand current progress in the field of complex circuit formation.
- (viii) *Neural stem cells.* The student will become familiar with our current understanding of neural stem cells, in a developmental context and their potential therapeutic value.
- (ix) *Neurodevelopmental disease.* The student will consider various developmental lesions and their underlying developmental causes.

**12. Programme details** (please list all the programmes to which the module contributes and state whether it is introductory (I), professional (P), core (Cr), compulsory (Cp), part of a core/compulsory pair (CrCp) or optional (O) for each programme. Where the module will form part of a core/compulsory pairing please state the partner module below.

Programme title	Programme code	I	P	Cr	Cp	CrCp	O
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MSc Neuroscience	TMSC1PTNSC TMSC2PTNSC							O Cp
MSc Neuroscience in Developmental Neurobiology	Pathway/route code: TNSB							

CRCP's partner Module code	Module title	Programme title	Programme code

**13. Prohibited combinations** (please list all the modules which cannot be taken in combination with the proposed module and to which programme this relates)

Module title	Module code	Programme
B Neuroscience research	7PAMNNB1	
B1 Psychiatric Genetics research	7PAMNNB1A	
B2 Addiction Biology research	7PAMNNB2	
B4 Neurodegeneration research	7PAMNNB4	
B5 Neuroimaging research	7PAMNNB5	
B6 Functional Neuroimaging and Tractography research	7PAMNNB6	
B7 Cognitive Neuroscience research	7PAMNNB7	

**14. Pre-requisites** (please list all the modules for which the proposed module is a pre-requisite)

Module title	Module code
MSc Neuroscience in Developmental Neurobiology pathway only: C3 Research project in Developmental Neurobiology	7PAMNNC3
(and all the modules which are pre-requisite for the proposed module)	
Module title	Module code
A1 Fundamental Neuroscience	7PAMNNA1
A2 Fundamental Neuroscience	7PAMNNA2
A3 Fundamental Neuroscience	7PAMNNA3

**15. Contact time/directed study** (please indicate the **exact number of hours for each activity** to give an overall picture of the workload a student taking the module would be expected to undertake. The student should be made clear of what they can expect regarding contact time with staff, and the expectation that the programme has of its students as independent learners). Apart from placements and self-guided learning it is expected that the others are all taught sessions.

Lectures	Seminar/tutorials	Field/lab/studio/supervised learning	Project work	Placements	Self-guided learning
25	10	15			250

**If any of the above is related to e-learning please give details below:**

For their private study, students will listen/watch recordings of their lectures, and will access lecture handouts/recommended reading, etc, in an e-learning environment

### 16. Assessment pattern - For King's students

Method	Number/ amount	Duration / length	Pass Mark (40 for level 4, 5 and 6; 50 for level 7)	Mandatory mark/ Qualifying mark	% of final grade of module	SI set up if different
Unseen written examinations	1	2.5 h	50%	No	50%	
Assessed coursework (please specify ie essay, project, seminar work, lab work)						
Practical examinations						
Clinical examinations						
Oral examinations						
Dissertation						
Other (please specify)	examination of a 250- 300 word abstract written to accompany a published paper given to students without the abstract	2 h	50%	No	50%	
Other (where attendance/ completion is a requirement in order to pass but does not contribute a mark to the final grade)						
For KIS purposes, please note where the assessment falls under the following 3 categories (see guidance notes for explanation of categories):	Written		Coursework		Practical	

**16. Assessment pattern - For King's students**

Reassessment opportunity: please state the reassessment pattern, see regulation A3, 20.4 – 20.6

**17. Assessment pattern - For Study Abroad students, if applicable**

Method	Number/ amount	Duration / length	Pass Mark (40 for level 4, 5 and 6; 50 for level 7)	Qualifying mark	% of final grade of modul e	SI set up if different
Unseen written examinations						
Assessed coursework (please specify ie essay, project, seminar work, lab work)						
Practical examinations						
Clinical examinations						
Oral examinations						
Dissertation						
Other (please specify)						
Other (where attendance/ completion is a requirement in order to pass but does not contribute a mark to the final grade)						

<b>17. Assessment pattern - For Study Abroad students, if applicable</b>						
<b>Method</b>	<b>Number/ amount</b>	<b>Duration / length</b>	<b>Pass Mark (40 for level 4, 5 and 6; 50 for level 7)</b>	<b>Qualifying mark</b>	<b>% of final grade of module</b>	<b>SI set up if different</b>
For KIS purposes, please note where the assessment falls under the following 3 categories (see guidance notes for explanation of categories):	Written		Coursework		Practical	
Reassessment opportunity: please state the reassessment pattern, see regulation A3, 20.4 – 20.6						

**18. Examples of key recommended text books**

Students will have access to recordings of the previous years lectures prior to the module starting to guide their reading

**19. Useful websites**

MSc Neuroscience website: <http://neuroscience.iop.kcl.ac.uk/msc>

MSc e-learning site:  
<http://moodle.iop.kcl.ac.uk> (login required)

MRC Centre for Developmental Neurobiology website:  
<http://www.kcl.ac.uk/depsta/biomedical/mrc/index.php>

**MODULE APPROVAL FORM  
SECTION 2 – SUPPLEMENTARY INFORMATION**

This section will not be relevant for all modules

**1. Module name**

B3 Developmental Neurobiology research

**2. In cases where parts of all of the module are delivered either away from one of the College campuses and/or by a body or bodies external to the College please provide the following details**

Name and address of the off-campus location and/or external body N/A

Percentage of the module delivered off-campus or by external body N/A

Nature of the involvement of external body N/A

Description of the learning resources available at the off-campus location N/A

What mechanisms will be put in place to ensure the ongoing monitoring of the delivery of the module? N/A

***Where students are undertaking placements/year abroad/year in employment please provide the guidance information presented to students undertaking this method of study***

**MODULE APPROVAL FORM  
SECTION 3 – ADMINISTRATIVE INFORMATION**

**1. Module name**

B3 Developmental Neurobiology research

**2. Start date****Year**

Started in 2010

**Month**

February

**3. Numbers** (if applicable)

Maximum

20

Minimum

5

**4. Availability** (please indicate when the module is available and when the examination will take place – indicate if this is different for Study Abroad students)

**Period of study** (dd/mm/yy – dd/mm/yy)

	<b>From (dd/mm/yy)</b>	<b>To (dd/mm/yy)</b>
Sem 1		
Sem 2		
Term 1		
Term 2	Last week January	3 <sup>rd</sup> week February
Term 3		
Standard year		
Other		

*NB: If module is being delivered more than once during the academic year, note the **full set** of dates that the module is available*

**Examination period** (*Period 1 (January)/Period 2 (May)/Period 3 (Other)*)

<i>Period 1 (January)</i>	
<i>Period 2 (May)</i>	
<i>Period 3 (Other – please note the month)</i>	<i>March</i>

*NB: if module is being delivered more than once during the academic year, note which examination period relates to relevant period of study.*

**5. Superseded modules** (please list any modules that the proposed module supersedes and indicate whether such modules have ever been taught or examined)

Module title and code	Taught	Examined
This module is unchanged but the approval form is required to list changes to other modules that affect the pathways	✓	✓

**6. Contributing departments/divisions/Schools** (please give details if the module will not be taught exclusively within the proposing department) Please note that % of contribution must be a fixed percentage not in a range (e.g. cannot be 0 – 20%)

Contributing Department/ Division/School	Nature of involvement	% contribution to teaching
1. MRC Centre for Developmental Neurobiology, Guy's	Each department will contribute	80%



Module approval 2012/13

Campus (host)  2. MRC Centre for Neurodegeneration Research, and Centre for the Cellular Basis of Behaviour, Department of Neuroscience, IoP	to the student learning contacts (lectures, seminars. tutorials)	20%
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**MODULE APPROVAL FORM  
SECTION 4 – THE APPROVAL PROCESS**

**1. Module name**

B3 Developmental Neurobiology research

**2. Initial approval/consultation at the planning stage**

(a) Will the new module require new ISS stock or facilities/systems?

Yes

No

(b) Will the new module require any new resources (e.g. teaching space, staff, offices, additional support from central services?)

Yes

No

(c) If the new module contains student activities that involve human subjects, has the appropriate ethical approval been sought and granted

Yes

No

If Yes to (a) and/or (b) above, please attach details and signed approval from the relevant College officer

If Yes to (c) please attach confirmation of ethical approval, including the ethics approval number

**3. Approval by the School Education Committee**

Date module approved: .....

Signature of the Chair of the School Education Committee:..... Date: .....

(Electronic signatures are acceptable)

**4. Approval for modules jointly taught by more than one School**

Date module approved by the second School(s): .....

Signature of the Chair of the second School Education Committee(s):..... Date:.....

(Electronic signatures are acceptable)

**MODULE APPROVAL FORM  
SECTION 5 – MODULE SET UP ON SI (IN SCHOOL)**

**1. Module name**

B3 Developmental Neurobiology research

**2. School approved to set Module up on SI**

Yes

No

*For Quality and Academic Support Section (QAS) purposes only:*

**3. Information recorded on form approved by QAS?**

Yes

No, sent back to School

If no, why was the form sent back to the School?

**4. If the module was picked as part of a sample and checked by Information Development and Analysis, was the information recorded on SI correct?**

Yes

No

If no, what information had been incorrectly inputted