

Guidance CG(x)

Exemplar Programme Specification

A. NATURE OF THE AWARD

Awarding Institution:	Kingston University
Programme Accredited by:	British Association for Neurobiology
Final Award(s):	BSc (Hons) Neurobiology
Intermediate Awards:	CertHE Neurobiology, DipHE Neurobiology, BSc
Field Title:	Neurobiology
FHEQ Level for the Final Award:	Honours
Credit Rating by Level:	120 @ Level 4, 120 @ Level 5, 120 @ Level 6
JACs code:	C100
QAA Subject Benchmark Statement(s):	Biological Science
Minimum Registration Period:	3 years
Maximum Registration Period:	9 years
Faculty	Faculty of Science Faculty of Health and Social Care Sciences
School	School of Life Sciences
Location:	Penrhyn Road Richmond upon Thames College
Date Specification Produced:	September 2004
Date Specification Last Revised:	July 2008

B. FEATURES OF THE FIELD

1. Title:

The field is available in the following forms:

- BSc (Hons) Neurobiology
- BSc (Hons) Neurobiology with <x>
- BSc (Hons) Neurobiology and <x>

(where x is a second subject. Note that Neurobiology is not offered as a minor subject)

Guidance CG(x)

Exemplar Programme Specification

2. Modes of Delivery

The field is offered in the following alternative patterns:

- Full-time
- Part-time

3. Features of the Field

Neurobiology is offered primarily as a three year full-time honours degree. However, it is possible for students to follow the field part-time and to switch between full-time and part-time attendance. Some of the features of the field are:

- students who graduate having studied the full field or major field (but not the half-field) are recognised for membership of the British Associate of Neurobiology
- the major field and half fields can be combined with a range of other subjects (minors and half fields respectively). The Prospectus provides details of available combinations. Some popular combinations are with a language, psychology, business studies, biochemistry and pharmaceutical science

C. EDUCATIONAL AIMS OF THE FIELD

The main aims of the half field are:

- To provide all students who take the Neurobiology field with a in-depth knowledge and understanding of the core elements of neurobiology
- to enable students to identify, locate and critically appraise secondary and primary sources as a basis for independent study and a major research project in the final year
- to develop subject related practical skills
- to provide students with the opportunities to develop their written and oral communication skills
- to prepare students for graduate employment, research, further study and lifelong learning by developing their intellectual, problem solving, practical and key (transferable) skills

Additional aims of the major field are:

- to extend the students knowledge into an additional subject closely related to core Neurobiology
- to develop a wider range of practical skills
- to prepare students for a wider range of opportunities for further study and employment related to Neurobiology

Additional aims of the full-field are:

Guidance CG(x)

Exemplar Programme Specification

- to extend the student's knowledge into a second closely related subject area to core Neurobiology
- to further extend the range of practical skills acquired
- to prepare students for an even wider range of opportunities for further study and employment related to Neurobiology

D. LEARNING OUTCOMES (OBJECTIVES) OF THE FIELD

1. Knowledge and Understanding

On completion of the half field all students will have an in depth knowledge and understanding of:

- the workings of the individual components of the neuromuscular system
- how nerve cells communicate with each other and with muscle cells
- neuroanatomy
- brain function, sensory systems, motor, physiological and endocrine control systems, memory and higher mental functions
- the latest research approaches and literature in the field

On completion of the major field students will gain additional knowledge and understanding of **one** subject closely related to Neurobiology and chosen from the following:

- comparative neurobiology
- psychology
- human physiology
- neuropharmacology

On completion of the full-field students will gain additional knowledge and understanding of **two** subjects closely related to neurobiology (choices from the same list as that for major-field students above).

2. Cognitive (thinking) Skills

On completion of the field (full-field, major or half) students will be able to:

- critically analyse and appraise both primary and secondary sources
- solve complex problems
- plan, conduct and report on an individual research project
- assemble data from a variety of sources and discern and establish connections
- demonstrate the ability to be independent, autonomous learners

3. Practical Skills

On completion of the field (full-field, major or half) students will be able to:

Guidance CG(x)

Exemplar Programme Specification

- Carry out subject related practical work safely and understand safety requirements
- Design controlled experiments to investigate neurobiological phenomena
- Select and use neuroanatomical techniques (including electron microscopy)
- use a range of complex instruments and understand their technological basis

In addition students who have studied the major or full-field will have skills and knowledge related to a wider range of topics, depending on their choice of modules.

4. Key Skills

On completion of the field students will have acquired the following key skills:

a. Self awareness skills

- recognise and reflect on areas of personal strengths and weaknesses and plan for personal development
- demonstrate ability to organise self and manage time to achieve targets, work effectively without supervision

b. Communication Skills

- provide written materials in a variety of formats fit for purpose
- present, challenge and defend ideas effectively, orally and in writing
- actively listen and respond appropriately to the ideas of others

c. Interpersonal skills

- work well with others in a group or team, respecting diversity of ideas, values and beliefs
- make effective contributions to group work, debates and discussions
- give, accept and respond to constructive feedback

d. Creativity and problem solving skills

- use a variety of approaches to seek and find solutions to problems
- evaluate and present evidence to justify judgements made

e. Research and information literacy skills

- search for, retrieve and store information within ethical and legal frameworks
- critically evaluate and use appropriate ICT to present text, data and images

Guidance CG(x)

Exemplar Programme Specification

- produce accurate citations and references to acknowledge sources used in academic work

f. Numeracy

- collect data from primary and secondary sources and use appropriate methods to manipulate this data
- present and record data in appropriate formats
- interpret and evaluate data to inform and justify arguments
- be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data

g. Management and leadership skills

- determine the scope of a task or project
- monitor and review resources and time to enable effective completion of a task or project
- work collaboratively with others to enable all to effectively contribute to the task or project

E. FIELD STRUCTURE

The field is part of the University's Undergraduate Modular Scheme. Fields in the UMS are made up of modules which are assigned to levels. Levels are progressively more challenging as a student progresses through the field. Each level is normally made up of 8 modules each worth 15 credits (or an equivalent combination of half and multiple modules in some cases). Typically, a student must complete 120 credits at each level. Some fields may culminate in an intermediate award (as detailed elsewhere in the Programme Specification). All students will be provided with the UMS regulations and specific additions that are sometimes required for accreditation by outside bodies (eg. professional accreditation) and as outlined below and will be provided in detail for students in field handbooks.

FIELD CONTENTS

LEVEL 4			
Module Code	Module Title	Credits	Pre-requisites
Core Modules:			
LS101	Introduction to Cell Biology	15 L4	None
LS106	Biochemistry 1	15 L4	None
LS108	Introduction to Physiology	15 L4	None
M101	*Quantitative Methods 1	15 L4	None

Guidance CG(x)

Exemplar Programme Specification

C101	<i>*Introduction to Information and Communication Technology</i>	15 L4	None
Option Modules:			
LS102	Animal Diversity	15 L4	None
PS101	Introduction to Psychology	15 L4	None
LS107	Biochemistry II	15 L4	LS106
LS110	Introduction to Pharmacology	15 L4	None

Free choice modules:

Full-field students may take any module from Level 4 in other fields that fits their timetable in place of one option (eg. another science subject, a language, business studies etc.).

Half-field students must take the core modules and one of either *M101 or *C101. However, it is essential that they take the equivalent of the module not included in their other half-field (normally, permitted combinations of half-fields allow for this).

Major-field students take the core modules and one of *M101 or *C101 (with the other in their minor field) together with one of the options. Major-field students are recommended to take an option rather than a free choice module to ensure sufficient choice in levels 5 and 6.

LEVEL 5			
Module Code	Module Title	Credits	Pre-requisites
Core modules:			
LS202	Structure and Function of Nerve Cells	15 L5	LS101
LS203	Structure and Function of Muscle Cells	15 L5	LS101
LS204	Neuroanatomy	15 L5	LS101
LS208	Neurobiological Research Methods	15 L5	M101
Option modules			
LS205	Comparative Neuroanatomy	15 L5	LS102
LS211	Human Physiology I	15 L5	LS108
LS212	Human Physiology II	15 L5	LS212
LS220	Animal Behaviour I	15 L5	None
LS222	Neuropharmacology	15 L5	LS110
LS223	Biochemistry of Nerves and Muscles	15 L5	LS106
PS201	Perception Psychology	15 L5	PS101
PS202	Developmental Psychology	15 L5	PS101

Guidance CG(x)

Exemplar Programme Specification

Full-field students must take the five core modules and either three options or two options and a free choice module. The choice of options will determine the choice then available in Levels 5 and 6.

Half-field students must take the four core modules.

Major-field students take the four core modules and one option, the option will determine the range of options available in Level 6; major field students can therefore follow one theme from Neuroanatomy, Psychology, Biochemistry, Physiology and Psychology/Comparative Behaviour.

Full-field students are able to follow at least two themes allied to their core module studies.

LEVEL 6			
Module Codes	Module Title	Credits	Pre-requisites
Core modules:			
LS301	Neurophysiology of Behaviour I	15 L6	LS202 & LS203
LS302	Neurophysiology of Behaviour II	15 L6	LS202 & LS203
LS398	*Research Project/Dissertation	15 L6	LS208
LS399	*Research Project	30 L6	LS208
Option modules:			
	Advanced Neurobiological Techniques	15 L6	LS205
LS308	Memory and Advanced Neural	15 L6	LS202
LS309	Functions	15 L6	LS202
LS310	Biological Basis of Neurological	15 L6	LS212
LS320	Disorders	15 L6	LS212
LS321	Endocrinology	15 L6	LS223
LS331	Central Systems in Physiology	15 L6	None ⁺
LS398	Brain Chemistry	15 L6	
PS301	Dissertation/Extended Essay	15 L6	PS202
PS302	Personality	15 L6	PS202
LS303	Psychology of Learning		LS220
	Animal Behaviour II		

Half-field students take the two core taught modules (LS301 and LS302), the single module project/dissertation and one option (from a limited number which have Level 5 core option pre-requisites).

Major-field students take the two core taught modules, the double module research project and an option that follows on from the theme chosen at Level 5.

Full-field students take the core taught modules, the double module project and four options that follow on from the themes chosen at Level 5.

Guidance CG(x)

Exemplar Programme Specification

Notes:

1. Students who complete 120 Level 4 credits and discontinue their studies are eligible for the award of a certificate of Higher Education (CertHE).
2. Students who complete 120 Level 5 credits (following 120 Level 4 credits) and discontinue their studies are eligible for the award of a Diploma of Higher Education (Dip.HE).
3. Students who have completed Level 5 may choose to progress to a Degree rather than an Honours Degree. This requires the completion of 60 Level 6 credits and must include the two Level 6 core taught modules.
4. The Dissertation/Extended Essay option is an independent literature-based investigation. The chosen topic must be related to either core modules or chosen options but not the main project/dissertation.
5. Students who take the half-field are not eligible for membership of the British Association for Neurobiology on graduation. Students who take the major-field may be eligible for membership depending on options chosen (advice will be given when the choice of options is made). Full-field students are normally eligible for membership.

F. FIELD REFERENCE POINTS

- The field has been designed to take account of QAA Subject Benchmark Statements
- The awards made to students who complete the field or are awarded intermediate qualifications comply fully with the National Qualifications Framework
- All of the procedures associated with the field comply with the QAA Codes of Practice for Higher Education
- Students who are awarded an Honours Degree having followed the full-field will be eligible for membership of the British Association for Neurobiology. Depending on options chosen, students who follow the major field may be eligible for membership, whilst students who follow the half-field will not be eligible unless they complete further qualifying studies

G. TEACHING AND LEARNING STRATEGIES

- In Level 4 students will be equipped with the knowledge and skills to study more advanced topics in Neurobiology and related subjects at higher levels. The field is designed for students who have studied 'A' Level Biology and Chemistry or equivalents. In the first year all students take modules that equip them with the necessary numeracy, research and information literacy skills to study the subject to degree level
- A wide range of learning and teaching strategies are used in the field. These include:
 - formal lectures
 - e-learning

Guidance CG(x)

Exemplar Programme Specification

- group projects
 - seminars
 - problem solving classes
 - small group tutorials
 - practical investigations
 - independent learning from guided texts and work books
 - research projects
 - visits to specialist laboratories
- A special feature of the field is the range of practical work that will be undertaken using advanced equipment and instrumentation. For example, all students will become familiar with the electron microscope, computer averaging techniques, advanced anatomical techniques (such as CT Scanning), microelectrode techniques and a wide range of physiological instruments
 - Knowledge and understanding of neurobiology will be developed from level to level. Level 4 provides core underpinning knowledge necessary for the study of the structure and function of the component parts of the nervous system in Level 5. In Level 5 students study research methods as a preparation for the Level 6 independent research project. Level 6 focuses on an understanding of the functions of the brain in controlling behaviour and responding to external stimuli. Students who follow the major field or full-field are able to develop an in depth understanding of topics closely related to the core studies. These related themes range from neurochemistry to psychology and include comparative studies
 - From level to level, students progressively make use of more primary, research based sources of information and will develop skills to analyse and appraise original sources, assemble data from various sources, solve complex problems and in Level 6, be able to carry out an individual research investigation from planning to final report. Students are expected to become more independent in their learning from level to level. This culminates in the research project in Level 6
 - Across the levels students will be offered opportunities to reflect on their learning and achievement to enable them to identify their strengths and weaknesses and to facilitate them to plan for their success. Throughout the field emphasis is placed on developing self awareness skills, communication skills, interpersonal skills, research and information literacy skills, numeracy skills, management and leadership skills and creativity and problem solving skills. Students are expected to take responsibility for articulating their progress and keeping a record of their achievements (which may be either a paper or electronic format). This provides the basis for students to enhance their personal development after graduation whether these relate to further research and/or training, careers, lifelong learning or personal development goals

Guidance CG(x)

Exemplar Programme Specification

Work Based Learning Included

This particular field would not include WBL, but if a field does then an entry should be made under this heading. This section should cross refer to Section E where any modules, formal placements etc. should be included. This section should describe briefly the general approach to WBL in the field, including details of whether work based learning is formal or required, voluntary work experience, placements, modules, where work based learning takes place, who finds the places, assessment methods, supervision arrangements, benefits etc.

H. ASSESSMENT STRATEGIES

A wide range of assessment strategies are used in the field and for half-field and major-field students will be complemented by those employed in the student's other chosen field. The assessments are designed to enable all students to demonstrate that they have achieved the learning outcomes detailed in D above and include:

- unseen examinations
 - open book examinations
 - multiple choice tests
 - short answer tests
 - practical reports
 - problem exercises
 - data interpretation exercises
 - individual oral examination
 - group and individual presentations
 - essays
 - reports
 - literature surveys
 - experimental designs
 - major project reports
- Many of the skills developed during study of the field will be assessed within these various types of assessment (for example, the use of ICT is a normal expectation in the preparation of written work, reports etc; data handling is inherent in many of the activities, assessments will be carried out by groups and individuals and greater self-reliance will be needed from level to level)
 - The assessments are a mixture of course work and end of module "summative" assessments. Each module carries a final grade which is made up of the marks for course work and end of module assessments. The contribution of the individual assessments to the module total and the requirements to pass each module will be detailed in the field handbook/module guides

Guidance CG(x)

Exemplar Programme Specification

See appendix 1 for a map of field learning outcomes to modules

I. ENTRY QUALIFICATIONS

1. The minimum entry qualifications for the field are:

Five GCE passes including two at A2. The A2 subjects should normally be Biology and Chemistry or related subjects, although students offering Psychology, Mathematics and Physics Advanced Levels with either Chemistry or Biology will be considered

or

any equivalent qualifications and/or experience; applications from mature students and holders of qualifications other than GCEs are welcomed

2. Typical entry qualifications set for entrants to the field are:

A total of 300 points at AS and A2 from three subjects including Biology and Chemistry or either Biology or Chemistry and one other Science Advanced Level (including Mathematics and Psychology)

J. CAREER OPPORTUNITIES

Only 10% of graduates from the full-field in July 2008 were unemployed or working in temporary jobs six months after graduation. Just over 50% of graduates continue to research (20% registered for PhDs in a wide range of Universities) or further study (20% taking Masters Degrees and 10% other qualifications including PGCEs). 40% of students obtain permanent jobs, some of which are subject-related and some of which use the intellectual and transferable skills developed during the study of the field in a wide range of commercial, industrial and public sector organisations.

K. INDICATORS OF QUALITY

- the field was part of the internal subject review of Life Sciences provision at Kingston in 2008. The report evaluated the programmes as current and valid and commended the quality of the learning opportunities available to enhance the student's experience within the field.

L. APPROVED VARIANTS FROM THE UMS/PCF

N/A

Exemplar CG(x)

Exemplar Programme Specification

Appendix One: Mapping of programme learning outcomes to modules

FIELD LEARNING OUTCOMES	LS101	LS106	LS108	M101	C101	LS102	PS101	LS107	LS110	<i>Please note that this is an example only. All modules contributing to a field should normally be included.</i>		
KNOWLEDGE AND UNDERSTANDING												
The workings of the individual components of the neuromuscular system	S	S	S			S		S	S			
How nerve cells communicate with each other and with muscle cells	S	S			S	S	S	S				
Neuroanatomy					F	S						
Brain function, sensory systems, motor, physiological and endocrine control systems, memory and higher mental functions			F			S	S		S			
The latest research approaches and literature in the field						S	S					
COGNITIVE SKILLS												
Critically analyse and appraise both primary and secondary sources	S	S			S	S		S	S			
Solve complex problems	S	S			S	S		S	S			
Plan, conduct and report on an individual research project	S	S		S	S	S	S	S	S			
Assemble data from a variety of sources and discern and establish connections	S	S		S	S	S	S	S	S			

Exemplar CG(x)

Exemplar Programme Specification

discussions													
Give, accept and respond to constructive feedback	S								F				
<i>CREATIVITY AND PROBLEM SOLVING SKILLS</i>													
Use a variety of approaches to seek and find solutions to problems						S	F						
Evaluate and present evidence to justify judgements made						S	F						
<i>RESEARCH AND INFORMATION LITERACY SKILLS</i>													
Search for, retrieve and store information within ethical and legal frameworks	S	S	S	S		S		S	S				
Critically evaluate and use appropriate ICT to present text, data and images				S		S		S	S				
Produce accurate citations and references to acknowledge sources used in academic work	S	S	S	S		S		S	S				
<i>NUMERACY</i>													
Collect data from primary and secondary sources and use appropriate methods to manipulate this data	S	S	S	S		S							
Present and record data in appropriate formats	S	F		S				F					
Interpret and evaluate data to inform and justify arguments	F		S	S	S	F							
Be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data		S	S	S	S			S	S				
<i>MANAGEMENT AND LEADERSHIP SKILLS</i>													
Determine the scope of a task or project		F		S		S	S						
Monitor and review resources and time to enable completion of a task or project	S	S	S	S	S								
Work collaborative with others to enable all to effectively contribute to the task or project	S		F			F		S					