BSc (Hons) Neuroscience with Psychology

Degree Programme Guide 2014-15
Introduction

Neuroscience is the study of nerve cells and how they work together. The nervous system regulates many internal functions and also co-ordinates the activities we know as human behaviour. Since nerves communicate with each other by producing electrical signals, Neuroscientists have to push technologies to the limit to study the nature of these signals by recording from individual nerve cells and even from single molecules. The brain is clearly a very complex and delicate organ. By unravelling the mysteries of normal brain function, Neuroscience promotes our understanding of the devastating illnesses of the brain which afflict the lives of so many people.

Neuroscience as a distinctive discipline has only emerged within recent years. At present there is an almost explosive growth going on regarding research in this area, which is creating a demand for graduates with a broader background in Neuroscience-related disciplines than has been available in traditional single subject degree schemes. This degree permits the student to follow a coherent course in Neuroscience drawn from a variety of disciplines offered by the School of Medical Sciences.

Aims and Outcomes

This degree course aims to instil a broad base of knowledge regarding physiological function at the molecular, cellular and systems levels. Additionally, students will gain an in depth understanding of selected aspects of Neuroscience which will reflect the research expertise and strengths within the Department. A thorough understanding of the scientific method and the development of a critical approach to problem solving and research literature also will be gained. In carrying out a research-based project and the presentation of the project findings as a thesis, students will gain expertise in time management, data handling, and in the transferable skills associated with mastering statistics, graphics and word processing software packages.

General Enquiries

The Degree Programme Co-ordinators are Professor Gordon McEwan, (e-mail g.t.a.mcewan@abdn.ac.uk (tel. 01224-437403), Professor Gernot Riedel, (e-mail g.riedel@abdn.ac.uk (tel. 01224-437377) who will answer any query concerning the degree programme. Enquiries concerning a specific module should be made to the course co-ordinator for that module (See University Catalogue of Courses or SMS World Wide Web Pages for names: http://www.abdn.ac.uk/sms/). The Head of School of Medical Sciences is always available for advice regarding any of the degree schemes run by his School as well as matters such as careers advice. In the first instance appointments to see any of the above staff should be made with Ms Jill Reid (jill.reid@abdn.ac.uk) at the School Office sited on the 2nd level, Institute of Medical Sciences (01224-437470 internal 7470).

General Requirements
In order to complete the degree scheme the students programme of studies must comply with the Supplementary Regulations for the Degree of Bachelor of Science in Pure Science (BSc) supplied to the student in the extract from the University Calendar "Degrees in Science". This will involve taking a number of modules outwith the School of Medical Sciences during years 1 and 2. This document supplements the regulations in the University Calendar and the descriptions of modules given in the University "Catalogue of Courses". It is correct at the time of going to press but is open to change.

**Industrial Placements**

There is scope within the degree schemes for students with very good academic records to undertake a 1 year, paid, industrial placement as part of their degree. The placement is undertaken in year 4 of the degree scheme and students return to the University to complete their honours year in year 5. This work experience is co-ordinated by the School although placements are in companies outside the University.

Students interested in industrial placements are encouraged to contact Dr Allison Carrington in the first instance to discuss their plans.

Students must also register for, and complete, the pre-placement course, BT3006, in the first half of their third year. On successful completion of a placement and their honours year students will graduate with an MSci. Further details of this initiative can be obtained from Dr Allison Carrington (a.carrington@abdn.ac.uk).

**Looking Forward to the Honours Year**

Many of you will be intending to continue for a 4th year and to complete an Honours degree in the School of Medical Sciences. There are a few points you should bear in mind if this is your intention.

1. **Standard of entry**

   We try to welcome as many students as possible into the Honours year, but it must be recognised that it will only benefit the more able students. If 3rd year is a real struggle, then it may be too much for you to take on. As a general rule, we think that a CAS mark of 12 or better in each 3rd year module is a reasonable sign that you have reached the appropriate standard. Exceptions can be made if there is good reason, and a mixture of excellent results and one or two slightly poorer ones may sometimes be acceptable. Do let us know if there is an explanation for any poor performance, so that we can do our best to take it into account.

2. **Know what’s involved**

   The teaching in the Honours year in general involves fewer lectures and more input from you than in previous years. You will take the modules specified for your particular degree scheme, these amounting to 24 credits of study. Apart from students taking Biomedical Sciences (Option C), you are required to include BM4004 Advanced Molecules, Membranes and Cells, and a 60 credit Honours Project in your study programme. You will write a thesis and give a short presentation on your project. For all students taking an Honours project the final degree assessment will comprise of a contribution from the thesis, with the remainder coming from the papers associated with the taught modules taken in the Honours year, a paper on data analysis and interpretation, and a general essay paper.

3. **Prerequisites**

   Check that the courses you plan for 3rd year provide the foundation for the Honours degree you hope to take. Please refer to the appropriate Degree Programme Guide (available from the www SMS home page or from the School Office, Institute of Medical Sciences. If in doubt, consult your Personal Tutor or the appropriate Degree Programme Co-ordinator (for Neuroscience with Psychology, Professor Gordon McEwan Tel. 437403 or Professor Gernot Riedel, Tel. 437377). Please do this in plenty of time.
4. Summer research projects

It is possible to apply for funding for summer projects (8-10) weeks between 3rd and 4th year. This is a helpful base for your Honours project, which must be in a different area of research and usually with a different supervisor. Dr Allison Carrington will email members of the class at the end of November asking for CVs if they wish to be considered for a summer vacation studentship, and if they have any preferences for staff in whose laboratory they would wish to undertake the work.

Assessment

Throughout your course, assessment takes the form of continuous assessment (based upon performance in prescribed tasks such as practical reports and essays) and written degree examinations (multiple choice or essay questions) taken in the examination diets allotted to each half session. The final year assessment is made up of 5 examination papers, including a general paper (BM4901) and a problem solving paper (BM4902) and the submission of a thesis based on your project. Some students may be required to attend an oral examination (viva) with the external examiner. Details concerning assessments and course work within each module are provided in the Course Handbooks. These Course Handbooks are available either from the School Office or on the SMS World Wide Web Pages. Details concerning the relationship between credits and weightings may be found on http://www.abdn.ac.uk/sms

Academic Appeals

1. From time to time a student may seek to appeal against a decision involving academic judgement taken, in terms of the Regulations for the degree or other qualification for which he or she is studying, among others, by a Head of School refusing an award of a Merit Certificate, or admission to a higher level course; by Examiners refusing to award a pass or awarding an unacceptable class of Honours (or making no award); by the Examiners appointed to examine a thesis for a higher degree; or by the relevant Undergraduate Programme Committee or Academic Postgraduate Officer in relation to terms of study. Specific rights of appeal are very limited but the Senate has a general duty to regulate and superintend the teaching of the University, and the Court has the authority to review any decision of the Senate which may be appealed against by a member of the University.

2. Academic appeals must be lodged with the Academic Registrar within 14 days from the date of the issue of the decision being appealed against, unless the relevant Appeals Committee constituted under 7 or 8 below is satisfied that the decision had not become known to an appellant until too late to submit an appeal within that period.

3. Notwithstanding the above time limit, details of illness (which must be certified by a medical practitioner) and/or other personal circumstances which students believe may have affected their performance in an element of prescribed degree assessment will be accepted as grounds for appeal only if the Head of the relevant School has received written notification of them no later than one week after the date on which a student submitted or appeared for the assessment concerned. Where good reasons have prevented a student from notifying the Head of the School within this period, the student should write to the Head of the School as soon as is practicable and give details both of the illness (which must be certified by a medical practitioner) and/or other personal circumstances and of the events which prevented him or her from notifying the Head of the School within the prescribed period. Details reported after notification of a result will be accepted as grounds of appeal only in exceptional circumstances.

Problems with Course Work

If students have difficulties with any part of the course that they cannot cope with alone they should notify someone immediately. If the problem relates to the subject matter you may be best advised to contact the member of staff who is teaching that part of the course. Students with registered disabilities should contact either the IMS based School Office (Mrs Jenna Reynolds j.reynolds@abdn.ac.uk) or the Old Aberdeen office associated with the teaching laboratories (Mrs
Sheila Jones s.jones@abdn.ac.uk) to ensure that the appropriate facilities have been made available. Otherwise, you are strongly encouraged to contact any of the following as you see appropriate:

Course student representatives.
Course co-ordinator.
Convenor of the Biomedical Sciences student-staff liaison committee. Professor Gordon McEwan
School Disabilities Co-ordinator, Dr Derryck Shewan

Staff are based at Foresterhill (IMS & Health Sciences Building) and we strongly encourage the use of e-mail or telephone the School office (Ms Jill Reid, jill.reid@abdn.ac.uk) tel: 437470. You may be wasting your time to travel to Foresterhill only to find staff unavailable.

Course Details

All courses run in the School have practical and general skills (enterprise) components as integral parts of the teaching package. For detailed descriptions of the courses that make up the BSc (Hons) Neuroscience Degree consult the University Course Catalogue, or in the case of modules taught within the School of Medical Sciences consult the SMS World Wide Web Pages.

1st Year Neuroscience with Psychology Course Requirements

There are no courses in Neuroscience at Level 1. Intending Honours students in Neuroscience with Psychology require a basic understanding of general medical science and chemical principles with an introduction to psychology. Hence they are required to take (or gain exemptions from) in the first half session SM1001 Introduction to Medical Science and CM1020 Chemistry for Life Sciences 1 and PS1009 Introductory Psychology I. In the second half session SM1501 The Cell and CM1512 Chemistry for Life Sciences 2 and PS1509 Introductory Psychology II. The SM modules will provide a general background in medical science, thus preparing the student for the more detailed studies of mammalian Neuroscience that will be made in the second year of study.

Prescribed Level One Courses

First Half Session

Introduction to Medical Science (SM1001, 15 credits)
Chemistry for Life Sciences 1 (CM1020, 15 credits)
Introductory Psychology I: Concepts and Theory (PS1009, 15 credits)
One other course of your choice worth 15 credits

Second Half Session

The Cell (SM1501, 15 credits)
Chemistry for Life Sciences 2 (CM1512, 15 credits)
Introductory Psychology II: Concepts and Theory (PS1509, 15 credits)
One other course of your choice worth 15 credits

Timetable for Year 1

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2nd Year Neuroscience with Psychology Course Requirements

The second year of the Neuroscience with Psychology degree scheme involves two modules each of Physiology (BI20B2 and BI25B2) and Psychology (PS2017 and PS2517). In addition there are 2 compulsory key skills courses which are Foundation Skills for Medical Sciences (SM2001) and Research Skills for Life Sciences (BI2506). Recommended courses to go with these modules in the first half session include Molecular Biology of the Gene (BI20M3) and, in the second half session, Energy for Life (BI25M6).

Prescribed Level Two Courses

First Half Session
- Physiology of Human Cells (BI20B2, 15 credits)
- Advanced Psychology A: Concepts and Theory (PS2017, 15 credits)
- Foundation Skills for Medical Sciences (SM2001, 15 credits)

Second Half Session
- Physiology of Human Organ Systems (BI25B2, 15 credits),
- Advanced Psychology B: Concepts and Theory (PS2517, 15 credits)
- Research Skills for Medical Sciences (SM2501, 15 credits)

Timetable for Year 2

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3rd Year Neuroscience with Psychology Course Requirements

Credits are made up from courses involving cognate inputs from the Schools of Medical Sciences, Psychology and Biological Sciences. These provide students with a broad background across the wide subject area of Neuroscience. The courses are PS3012; PS3014; BM3502; BM3501 or ZO3507; BM3803 and PS3516.
Prescribed Level Three Courses

First Half Session
- Perception (PS3012, 15 credits)
- Biological Psychology (PS3014, 15 credits)

To meet the requirements for Enhanced Study, in addition to the 90 credits prescribed for your Degree Programme, you are required to take another 30 credit level 3 course of your choice. The School of Medical Sciences runs the following three 30 credit Disciplinary Breadth courses at level 3 which may be of interest to students studying Medical Sciences Degree Programmes.

- SM3001 Frontiers of Molecular Medical Sciences
- SM3002 Frontiers of Biomedical Science
- SM3003 Frontiers of Applied Medical Sciences

Second Half Session
- Neuroscience and Neuropharmacology (BM3502, 15 credits)
- Integrative Neuroscience (BM3803, 15 credits)
- Cardiovascular Physiology and Pharmacology (BM3501, 15 credits) or Animal Behaviour (ZO3510, 15 credits)
- Memory and Language (PS3519, 15 credits)

Timetable for Year 3

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4th Year Neuroscience with Psychology Course Requirements

In the first half session, selected areas which were dealt with in a broad context at level 3 are now considered in depth. These include aspects of Developmental Neurobiology and Functional Brain Anatomy. The second half session is occupied fully with a laboratory-based research project or a library research project, selected by students from a list which reflects local expertise.

Prescribed Level Four Courses
First Half Session
Advanced Molecules, Membranes and Cells (BM4004, 30 credits)
Brain Function and Malfunction (AN4002, 15 credits)
Developmental Neuroscience (PY4302, 15 credits)

Second Half Session
Physiology Project (PY4501, 60 credits)

Timetable for Year 4

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<td>BM4901 General Paper</td>
<td>BM4902 Data Analysis and Problem Solving Paper</td>
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