

BSc in Medical Sciences with NEUROSCIENCE AND MENTAL HEALTH

Introduction:

This course will provide students with a multidisciplinary approach to understanding the aetiology of neurological and mental disorders. During the Science year students will learn about the aetiology of common disorders encountered by neurologists and psychiatrists and how an understanding of the biological, psychological and social factors have also informed the development of interventions aimed at helping people with these conditions.

The course aims to provide an introduction to the molecular basis for key processes in the functioning of the nervous system such as communication between nerve cells, the basis for synaptic plasticity and the control of gene expression. The nervous system develops from its early origins as a small but discrete group of undifferentiated cells into the most complex and fascinating system in the human body. Understanding the processes by which highly complex neurons are formed, move and connect, provides insight into the functioning of the mature nervous system, and problems associated with its repair. Recent discoveries have greatly increased our understanding of the molecular signals involved in the development of the nervous system. The aim of the course is to demonstrate how basic neuroscience research from several disciplines can a) be integrated to provide an account of our major neurological and neuropsychiatric disorders and b) not only explain the clinical features but also direct the search for more effective treatments.

Later in the course students will receive teaching in research methods used in the development and evaluation of interventions for people with mental and neurological disorders. The basis for pharmacological treatments for conditions such as epilepsy, Parkinson's disease and schizophrenia will be examined. A comprehensive introduction to a range of psychological and social interventions used to prevent and treat mental disorders will also be considered.

This course will comprise a two week Introductory course (mainly based at the Hammersmith Hospital campus), three 5-week taught modules (based at the Charing Cross Hospital campus) and either a research project or specialist taught modules (two 5-week modules).

Course Directors

Professor Jackie de Belleruche
Dr James Stone

j.belleruche@imperial.ac.uk
james.m.stone@imperial.ac.uk

Course Administrator

Ms Olive Thomas

o.thomas@imperial.ac.uk

Aims and Objectives

After completing the course students will:

- Know how to understand and critically appraise research papers
- Have experience in presenting a paper to colleagues
- Have laboratory experience e.g. designing and conducting a mini-research project in small groups, neuropathology
- Have experience in writing up laboratory data as a research paper
- Be familiar with interpreting brain scans
- Be able to critically appraise research aimed at examining the efficacy of interventions and treatments such as randomised trials and meta-analyses

- Have the skills required to identify and synthesise findings from previously published studies examining the efficacy of pharmacological and psychological treatments.
- Be aware of ethical dilemmas posed by molecular neuroscience.
- Have a basic understanding of how to formulate psychological problems using cognitive and psychodynamic approaches.

The particular skills that will be gained in this module include an appreciation of the importance of critical analysis when reading the research literature and valuable experience of bringing together information from a variety of sources to improve understanding of complex topics. The practical component of the module will also provide useful training in experimental design, group negotiation, the use of observation and reporting skills.

Content

- The first module will introduce the molecular and cellular basis of nervous system development, regeneration, circuitry and functioning.
- Neurological and Psychiatric disorders will be reviewed in the second module and for each of the disorders being studied the objectives are to gain an understanding of:
 - the clinical presentation
 - the aetiology and underlying pathology
 - experimental studies of mechanisms of damage and repair
 - genetic background
 - new approaches to therapy
- In the third module students will learn about the theoretical basis of a range of pharmacological, psychological and social interventions

Format of teaching

- Basic science and clinical lectures
- Small Group teaching and seminars
- Class practicals

Introductory course

The aim of the Introductory Course is two-fold, firstly, to provide a background to the BSc course in which a range of generic skills that are fundamental to successful research will be covered and secondly, to provide a more specific background to methods and experimental approaches used in Neuroscience and Mental Health. The generic skills that will be covered include, Critical assessment of Scientific Literature, Data handling and statistics, Databases and referencing and Plagiarism. In the first week, there will be a Neuropathology refresher session and lectures given on signalling in the nervous system (from visualisation to functional analysis) and the use of experimental models in Neuroscience. A series of talks will be given in the first week entitled "Clinical Neuroscience: on the frontline" to introduce techniques and procedures used in Neurology, Neuroradiology, Neurosurgery and Neuropathology. In the second week, students will receive an introduction to the clinical aspects of psychiatry and the methods employed in psychiatric research.

During this two week period, students will be given a scientific paper to read and evaluate and will be required to summarise the paper in the form of an abstract (500 words). Small group feedback sessions will take place at the end of this period.

The Introductory course will take place mainly at the Hammersmith Hospital campus with the exception of two days where sessions will take place at the Charing Cross Hospital campus.

Module 1: Cellular and developmental neuroscience: from molecules to circuits

Module Leader:

Dr Jane Saffell

j.saffell@imperial.ac.uk

Aims

This module aims to give insight into the molecular and cellular basis of nervous system development, circuitry and functioning, with prominence given to the clinical consequences of dysfunction and potential treatment strategies. The cells of the nervous system and their complex interrelationships is a particular theme, as is the problem of central nervous system regeneration, clues to repair strategies found in development, and the neuronal circuitry controlling systems such as pain, sleep and coordination of movement. A feature of the module is a laboratory project in which students conceive, design and execute their own cellular neurobiology research in small groups within a guiding framework.

Content

The module is divided into five sections, starting with the cellular organisation and development of the nervous system. Here, after looking at the molecular basis of neural tube development, and related conditions such as spina bifida, the development, interrelationships and function of neurons, astrocytes, oligodendrocytes, Schwann cells and microglia in health and disease will be examined, ending with a snapshot of some key laboratory techniques in neurobiology research. The second section focuses on nervous system regeneration, the reason why this is problematic in the CNS, and practical strategies for CNS repair such as cell replacement therapies, biomaterial scaffolds, and targeted antibody therapeutics. In the next section synaptic transmission is the focus, with a particular emphasis on synaptic remodelling and learning and memory mechanisms, but also molecular mechanisms controlling neurotransmitter availability and the pharmacological implications of this for anti-depressant design. The fourth section centres around circuits and systems, including the neuronal circuits controlling movement coordination, sleep, and pain. The final section is a laboratory research project: following lectures and extensive interactive tutorials on experimental design, interpretation and statistical analysis, students will design and execute unique research projects in threes, based around determining the effect of a growth factor on cultured primary rat astrocytes, and the signalling pathways underlying effects seen.

Topics to be covered

Cellular organisation and development of the nervous system

Course introduction and overview of cells of the nervous system

Dr Jane Saffell

Neural tube development

Dr Anita Hall

Neurogenesis

Dr Anita Hall

Neurons and astrocytes: relating molecular cell biology to function

Dr Jane Saffell

Cytoskeleton: function and remodelling

Dr Jane Saffell

Axon growth & cell migration mechanisms

Dr Jane Saffell

Oligodendrocytes & Schwann cells in health and disease

Professor Richard Reynolds

Microglia in health and disease

Professor Richard Reynolds

Experimental techniques: tissue culture and immunohistochemistry
Dr Jane Saffell & Professor Richard Reynolds

Nervous system regeneration

Molecules and mechanisms

Dr Jane Saffell

Consequences of axonal damage and regeneration strategies

Dr Kenji Okuse

Stem cells: therapeutic potential

Dr Anita Hall

Mechanisms of hypoxic/ischemic damage

Professor Henrik Hagberg

Disorders of the developing CNS

Professor Mary Rutherford

Synaptic transmission

Synaptic structure, function and remodelling

Dr Anita Hall

Serotonin & dopamine systems & circuits

Dr Anita Hall

Learning & memory, synaptic modulation

Dr Stephen Brickley

Circuits and systems

Cerebellar development and circuitry

Dr Anita Hall

Pain: molecules, circuits and analgesic strategies

Dr Kenji Okuse

Sleep circuits and their regulation

Professor Bill Wisden

Sex hormones and brain development

Dr Glenda Gillies

Hyperkinetic disorder

Dr Aaron Vallance

Laboratory research project

Wet-lab: determining the effect of a growth factor on astrocytes in culture; cellular signalling pathways underlying effects seen.

Key elements of experimental design

Dr Jane Saffell

Experimental design workshops

Dr Jane Saffell

Instruction in data analysis and presentation

Dr Jane Saffell

Writing for non-specialists

Dr Jane Saffell

Format of teaching and formative assessment

Seminars

Interactive tutorials with group work and presentations

3-day laboratory practical

Tutorials

Format of in-course summative assessment

Practical write-up in the form of a paper

Article written for a non-specialist readership

All lectures will take place in the Lab Block Lecture Theatres 8, 9 or 10 on the Charing Cross Campus unless otherwise noted. The laboratory practical will take place in the Life Sciences teaching labs on the South Kensington campus.

Module 2: Neurological and Psychiatric disorders of the central nervous system

Module Leaders

Professor Jackie de Belleruche

j.belleruche@imperial.ac.uk

Dr Magdalena Sastre

m.sastre@imperial.ac.uk

Aims

- This aim of this module is to provide a comprehensive review of the aetiology and pathogenesis of cerebral disorders which present clinically with either neurological, neurocognitive, psychiatric or a mixture of symptoms.
- The clinical features will be reviewed followed by sessions detailing our current understanding of the neural basis of these disorders, which will include findings from genetics, molecular biology, neurochemistry, neuropathology and neuroimaging.
- The module will draw on the broad knowledge gained both in the foundation course and the earlier modules of the neuroscience pathway, instil a sound knowledge of the biological basis of CNS diseases and provide an invaluable insight into current research strategies and the rationale for future therapeutic interventions.

Content

- In this module the aim will be to take a detailed look at some of the common, and not so common, diseases that affect the central nervous system. Common neurological conditions covered will be Stroke, Multiple Sclerosis, Alzheimer's disease and Parkinson's disease.
- There will be sessions covering trauma, tumours and the rare spongiform encephalopathies,
- The main psychiatric disorders that will be covered are different forms of dementia, including Alzheimer's disease.
- Clinical cases will be presented to cover the main conditions covered in the module and questions will be posed which require research of the relevant literature.

Topics to be covered

Introduction to Module 2

Prof de Belleruche

Stroke and Trauma

Stroke: epidemiology, risk factors and genetics

Dr Pankaj Sharma

Running an acute stroke service

Dr Paul Bentley

Stroke: pathogenic mechanisms and neuroprotection

Prof de Belleruche

Stroke recovery and rehabilitation

Professor Richard Wise

CNS trauma: neuropathology

Prof Steve Gentleman

CNS trauma imaging
Dr David Sharp

Parkinson's disease

Parkinson's disease - clinical & therapeutics

Dr Ronald Pearce

Imaging in PD and AD

Professor David Brooks

Parkinson's disease –neuropathology

Prof Steve Gentleman

Parkinson's disease – new treatments including deep brain stimulation

Dr Peter Bain

Parkinson's disease –biochemistry and experimental models

Dr David Dexter

Parkinson's plus – MSA and related conditions

Prof Steve Gentleman

Amyotrophic Lateral Sclerosis/ Motor Neurone Disease

Amyotrophic lateral sclerosis/ Motor neurone disease (ALS) – clinical features, neuropathology and pathogenesis

Prof de Belleruche

ALS – molecular genetics and models Stroke – molecular biology

Prof de Belleruche

Alzheimer's disease and other types of dementia

Differential Diagnosis

Dr Ronald Pearce

Dementia: clinical features and aetiology

Dr Craig Ritchie

Alzheimer's disease: neuropathology and molecular biology

Prof Steve Gentleman

Alzheimer's disease: new drug treatments for dementia

Dr Craig Ritchie

NICE/ public policy for dementia

Dr Craig Ritchie

Animal models of Alzheimer's disease

Dr Magdalena Sastre

Frontotemporal lobar dementias

Prof Steve Gentleman

Tumours, prion disease and CNS infections

Tumours of the CNS

Dr Federico Roncaroli

CNS infections

Dr Federico Roncaroli

Prion disease - clinical, pathology & experimental

Prof Steve Gentleman

Multiple Sclerosis

Multiple Sclerosis – clinical features

Dr Paolo Muraro

Pathology of Multiple Sclerosis

Professor Richard Reynolds

Multiple Sclerosis immunology

Dr Paolo Muraro

Neurodegeneration in MS
Professor Richard Reynolds
Multiple Sclerosis - treatment strategies
Dr Paolo Muraro

Neuropathology practical

Format of teaching

Basic science and clinical lectures

Format of summative assessment

Neuropathology practical and an essay

Module 3: Disorders of the Mind

Module Leader

Dr James Stone james.m.stone@imperial.ac.uk

Aims

This five week module aims to provide students with a basic foundation in the current understanding of the biological underpinnings of normal mental processes, and how they go wrong – in psychosis, personality disorder, hallucinogenic drug use, eating disorders and addiction. It will cover aetiology, epidemiology, and treatment – both pharmacological and psychological.

Content

- This module will build on learning in the first two modules of the course and will describe how techniques used to examine the aetiology of neurological disorders have been applied in the context of mental health.
- In week one of the courses there will be a general overview of the module including an introduction to the classification of mental disorders and experimental research methods used in clinical research. Following this, there will be a number of lectures about normal mental processes, a discussion of how research into psychedelic drugs may help us to understand the nature of consciousness, as well as a lecture on eating disorders.
- Week two will focus on psychoses (schizophrenia and bipolar affective disorder). We will examine the contribution that basic sciences and neuroimaging have made to understanding the aetiology of schizophrenia. Pharmacological and psychosocial interventions used in the treatment of psychosis will then be discussed.
- In week three we will describe personality disorder and examine the aetiology and epidemiology of these conditions. The impact of personality functioning and other mental disorders on risk and risk assessment will be explored and students will be provided with an introduction to forensic psychiatry. Most students will have an opportunity to visit Broadmoor hospital and develop an understanding of the management of mentally disordered offenders.
- In week four we will explore the aetiology of addictive behaviour, and find out how our understanding of the biological basis of addiction and the psychological and social factors which lead to misuse of alcohol and drugs is shaping the development of treatments for these problems.

After taking the module the student will

- Have an understanding of the aetiology and epidemiology of psychoses, personality disorder and substance misuse problems.
- Have developed an understanding of how biological, psychological and social factors interact to increase the likelihood of mental disorders

- Understand how neurochemical, functional and structural imaging have led to advances in understanding the aetiology of psychoses and drug addiction
- Have an understanding of the main interventions and treatment options for people with psychosis, personality disorder and drug addiction
- Be familiar with principals used to assess and manage risks that can be associated with mental illness
- Be able to critically appraise studies which examine the effectiveness of treatments for mental disorders including clinical trials and systematic reviews

Specific skills

- Be able to critically appraise research aimed at examining the efficacy of interventions and treatments such as randomised trials and systematic reviews.
- Have the skills required to identify and synthesis findings from previously published studies examining the efficacy of pharmacological and psychological treatments.
- Be aware of ethical dilemmas associated with clinical research.
- Have a basic understanding of how to formulate psychological problems using cognitive and systems approaches.

Format of teaching

A mixture of large group teaching and seminars together with self-directed learning (40%). Sessions include interactive teaching, small group exercises, and an opportunity to visit a specialist treatment centre.

Reading materials

General introduction to the course

Blazer, Dan G (1998). *An introduction to clinical research in psychiatry*.

Craig, TKJ (1998) *ABC of mental health*.

Goldberg, D (2004) *Psychiatry in medical practice*.

Critical appraisal

Greenhalgh T. (1997) How to read a paper: getting your bearings *BMJ* 315: 243-246.

Edwards SJL, Lilford RJ, Hewison J. (1998) The ethics of randomised controlled trials from the perspectives of patients, the public, and healthcare professionals. *BMJ* 317:1209-1212

Egger M, Davey Smith G (1997) Meta-analysis: Potentials and promise. *BMJ* 315: 1371-1374

Moher et al. (2000) Improving the reporting of meta-analyses: the QUOROM statement *British Journal of Surgery*; 87: 1448-1454

In-course assessment

There are two pieces of in-course assessment;

A group-based oral presentation of a critical appraisal of a research paper (worth 50%), and a timed written essay (worth 50%)

Timetable

All sessions at Charing Cross Campus.

All morning sessions to finish no later than 12.30. All afternoon sessions start at 2.00pm and will end no later than 4.30pm

Week one – Introduction, normal mental processes and eating disorders

Week two - Psychoses and their treatment

Week three - Personality disorder, risk and risk management

Week four - Drug and alcohol misuse

Week five - In-course assessment

Specialist taught modules

See section 13.

End of year examinations

One 2.5 hour paper with three sections:

Section 1 (1 hr) One essay from a choice of three

Section 2 (45 mins) Compulsory data interpretation e.g. writing brief interpretation or results section of a paper or answering questions set on it

Section 3 (45 mins) Choice of three out of five short answer questions.

Past BSc Project Titles in Neuroscience and Mental Health

- The Impact on staff working in forensic settings upon staff mental health & the impact on staff of working with people with personality disorder: Literature reviews
- Does the efficiency of exon-skipping vary between muscles?
- Investigation of GABAergic interneuron diversity in the early postnatal cortex.
- Study into specific cortical thickness changes in the frontal, temporal and occipital lobes in schizophrenia and depression.
- Network breakdown following traumatic brain injury – investigating changes in functional connectivity.
- Molecular pathogenic pathways in Parkinson's disease.
- The genetics of carotid atheroma
- Photogenetic neural control
- An audit study of the clinical features of orthostatic tremor
- Examining the fate of transplanted mesenchymal stem cells in a rat model of Multiple Sclerosis.
- Elucidation of the pathway of cortisol synthesis and interaction with glycolysis in glioblastoma multiforme.
- The effects of buffeting in a vehicle on respiration in neurological patients with respiratory dysrhythmia
- Cognitive factors underlying motor stroke recovery.
- Does the efficiency of exon-skipping vary between muscles?
- Brain monoamine systems in Multiple System Atrophy: A PET study.
- Examination of glial changes in the nucleus basalis of schizophrenia and depression.
- Testing for the association of polyglutamine expansions in atrophin-1 in schizophrenia.
- Measuring the volume of the fetoplacental unit using MRI.
- Investigation into whether activated microglia, associated with the innate inflammatory response in Parkinson's disease; release factors e.g. cytokines that trigger the alterations in iron metabolism.

- Investigating pathogenic mechanisms mediating the effects of novel mutations in familial motor neurone disease/ amyotrophic lateral sclerosis.
- Modulating visual perception from the contents of working memory: a psychophysical study
- Does striatal D2 receptor availability predict personality traits in healthy volunteers?
- Is MADCAM-1 involved in inflammatory leukocyte trafficking and ectopic lymphoid tissue formation in multiple sclerosis?
- Progression of monoaminergic dysfunction in Parkinson's disease. An in vivo ¹⁸F-dopa PET study
- Evaluation of mevalonate kinase in human gliomastoma
- Annexin A1-formyl peptide receptor interaction in microglia cell line:effect on beta-amyloid processing
- Striatal pathology in Parkinson's disease: a substrate for dementia?
- The effects of buffeting in a vehicle on respiration in neurological patients with respiratory dysrrhythmia
- The role of astrocytes in grey matter demyelination in multiple sclerosis.
- Audit of comorbidity and pharmacological treatment in high security hospital personality disorder services.
- The effects of chronic subthalamic nucleus deep brain stimulation on postural stability in patients with Parkinson's disease
- Role of opioid or GABA-ergic system in addiction
- Neuroinflammation and alcohol misuse.
- Imaging neuroinflammation with Positron Emission Tomography (PET): a critical review of the current literature
- Molecular targets of anti-inflammatory drugs in chronic pain
- Is the nausea which accompanies vestibular disease Motion Sickness?
- Learning without seeing
- Is the nausea which accompanies vestibular disease Motion Sickness?
- TRAIL-mediated apoptosis in response to Hypoxic-Ischaemic challenge in immature neurons
- Therapeutic potential of anti-inflammatory drugs in stroke
- Therapeutic potential of anti-inflammatory drugs in stroke
- Fatigue in child survivors of critical illness
- MR quantification of brain development in fetuses with enlarged ventricles.

- Cerebellar pathology in Parkinson's Disease
- Epigenetic silencing of ASS1 and ASL in Gliomas: Low grade to High Grade
- The role of glucose and BP in acute stroke thrombolysis
- Neural mechanisms of human visual memory and selective attention: TMS and tDCS studies
- Effect of cognitive task on anticipatory responses to rapid movement while seated on a gym ball
- Damage to the brain-CSF barrier in multiple sclerosis
- Diagnostic Accuracy of CSF and Plasma Ab in people with dementia. A Cochrane DTA Review.
- Neural mechanisms of human visual memory and selective attention: TMS and tDCS studies
- Linking clinical status and outcome to new computational representations of brain anatomy
- Fibrinolytic cascade and neurodegeneration in MS
- MRI quantification of the cerebellar vermis and relationship to 2 year outcome in ex-preterm infants
- Social anxiety in children with sickle cell disease
- Sleep disorders in Parkinson's disease
- A combined post mortem MR imaging and immunohistochemistry study to investigate the cellular processes associated with injury to the developing brain
- Who buys cheap booze?
- Music effects on memory function in health and disease
- Music effects on memory function in health and disease
- Changes in fatty acid metabolism in human glioblastoma multiforme
- Characterising factors that regulate disease progression in Motor Neurone Disease/ Amyotrophic lateral sclerosis
- fMRI scans of hippocampal regions during memory recollection
- Imidazoline binding sites / receptors: a critical review of the current literature
- Self-expression among people with psychosis

What do the students think of the BSc in Neuroscience and Mental Health?

'After the toils of first and second year lectures, Neuroscience becomes a bit like Marmite. You either love it or you hate it. If you're one of those people who enjoyed it, then you should definitely consider the Neuroscience and Mental Health (NSMH) BSc. If you hated it, then perhaps it's wise to steer clear as it's not really for the faint hearted.

The course covers everything from the therapeutic uses of stem cells and the development of the nervous system in Module 1, to Parkinson's disease, epilepsy and schizophrenia in Module 2, and then psychiatric medications and psychotherapy in Module 3 with a whole host of other topics in between. Variety certainly isn't something that has been excluded from this course.

The 4th year is your chance to live like a proper student; lectures, instead of 8am surgical ward rounds, long lunch breaks and the occasional day off. For NSMH there are usually 2 lectures per day, starting at 10am (with the exception of a handful in Module 3 which start at 9:30am) and running until midday, then another one in the afternoon from 2 till 4pm. In Module 1, lectures lasting 2 hours can sometimes hurt the brain, but this becomes less problematic as you progress through into Modules 2 and 3 which are a bit easier going. Time off is seen a little less frequently than in some other courses, but lectures are based at Charing Cross which, for most people, means it gets brownie points for location when compared to some of the hospitals that other BSc courses have to trek to for their lectures. As with all BSc's, coursework makes up a proportion of your overall mark. The coursework for NSMH takes a variety of different forms; essays, lab work, pathology practical, a timed written assessment and group work, so there's bound to be some pieces that suit your strengths.

But it's not all about just being in the classroom. This year, everyone had the opportunity to visit Broadmoor Hospital, a high security hospital for offenders with mental illnesses. The trip gave us the chance to gain an insight into forensic psychiatry and to meet some of the patients who we will probably not forget for a very long time.

Overall, the NSMH BSc offers a great course to those who think they might have an interest in the field. A bit of motivation is probably quite an important requirement, but the topics covered and the lecturers who teach should definitely make you consider it as one of your choices.'

'Most importantly, the Neuroscience and mental health course is interesting, and fantastically rewarding. All of the material is cutting edge, and the lecturers are world-renowned in their own fields. Having said that, it is not a course for the work-shy. The lecture load is high, and the work expected from you outside of the classroom is certainly no small amount.

There is a wide variety of material covered in the course, with bits to interest everyone. Module one ranges from molecular studies in the formation of optic pathways, to practical experiments looking at the formation of the cerebellum. One of the things to recommend the course is its incorporation of practical work. Each module has its own practical associated with it, helping you to put some of the theory into a more readily visualised practical.

Whilst module one gives you the molecular basis for understanding much of the normal development and functioning of the nervous system, module two takes a disease-based approach to things. Studying the full gamut of neurological disorders, from diseases of ageing such as Parkinson's and Alzheimer's, to genetic disorders such as Duchenne Muscular Dystrophy, this module gives you a fantastically interesting and contemporarily relevant tour of the major neurological and psychiatric pathologies.

The final module provides the majority of the mental health input to the course. It is focussed to a large extent on interpretation of research, and development of new treatments. Having said this, all of the main psychiatric illnesses such as depression, schizophrenia and dementia are looked at in detail, but with a focus on clinical aspects as opposed to their molecular or genetic basis. This module also teaches you the majority of what you need to know for psychiatry in fifth year. Not something to be sniffed at.

The psychiatry component of the BSc also offers you the opportunity of organising a trip to Broadmoor high security hospital. This is not something you will get the chance to do again, and is well worth doing, in order to get an understanding of the way in which these hospitals work.

Perhaps the strongest part of the Neuroscience and mental health course is the projects on offer. These give you the opportunity to work with world-class researchers who are pushing back boundaries in the understanding and treatment of some of the most serious illnesses affecting man. All of the projects are based around vital work that needs doing, as opposed to the repeat of a tired old project as is seen in other courses. Here, you have the chance to carry out vital work on drug development for diseases that were previously thought incurable. There is no greater opportunity available to you within the study of medicine than to be involved in the potential cure for a disease.

The neuroscience and mental health course is rewarding, stimulating and cutting edge. There is no more fascinating area of medicine to be working or studying in at the moment and the course is one that I would recommend highly to anyone.'