

 **Learna** | **Diploma MSc**

# Neurosurgery

MSc Course



THE UNIVERSITY OF  
**BUCKINGHAM**



## Year 1

Delivered over 1 year, the online, part-time, distance learning, Postgraduate Diploma course is specially developed for busy health professionals. Formatted in 6 modules, each 6 weeks in duration; the course is designed to be practical and clinically focused.

## Year 2

The MSc runs over 1 calendar year starting with an initial 12 week online module to develop their skills in critical appraisal and knowledge of research methodologies. Students complete the professional project module which consists of a 1,500 word proposal and 10,000 word professional project.

## Why study Neurosurgery with us?

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Taught completely online, our MSc in Neurosurgery has been designed for healthcare professionals in the UK and overseas who want to specialise in Neurosurgery and develop both theoretical knowledge and research skills.

Neurosurgery is a competitive and demanding speciality, requiring a broad knowledge of anatomy, neurology and physiology, in addition to critical appraisal and research skills. Neurosurgical trainees and specialist CNS nurses require specialist qualifications to progress their careers in neurosurgery.

This unique online Neurosurgery course is specially developed for busy health professionals and is practical and clinically focused. It will give you a better understanding of the role of neurosurgery within healthcare settings, allowing you to apply your knowledge to your clinical practice.

The course is suitable for doctors of all grades and nurses, in particular medical professionals and clinical nurses specialists wanting to specialise in neurosurgery. Healthcare professionals working within a relevant clinical setting, both UK and overseas, with a related healthcare science degree (including international qualifications) are eligible to apply for the two-year MSc course.

# Neurosurgery

## Course Modules

Our online Neurosurgery MSc is a part-time, distance-learning course, comprising of eight modules. The first six modules are each worth 20 credits and run over a period of six weeks. The seventh module lasts 10 weeks and will develop skills in critical appraisal and knowledge of research methodologies. Students then complete the final module - the professional project.

### Module 1 - Assessment and management of brain and spine trauma

#### Aim of the module:

- The module aims to address the investigation, diagnosis and management of brain and spine trauma, including critical appraisal of the evidence-base and neurosurgical approaches appropriate for CNS trauma.

#### Synopsis of module content:

- Assessment of head injury
- Primary and secondary brain injury
- Management of intracranial pressure
- Natural history of severe head injury
- Principles of spinal injury
- Principles of neurorehabilitation

#### On completion of this module, students will be able to:

1. Demonstrate an in-depth knowledge of the assessment and investigation of patients with head and spine trauma.
2. Critically interpret the evidence base to demonstrate application of knowledge to the management of traumatic brain and spine injury.
3. Exercise initiative, personal responsibility and ethical decision-making in brain and spine trauma.
4. Demonstrate an in-depth understanding of the evidence relating to the management of patients presenting with head and spine trauma.

### Module 2 - Neuro-oncology

#### Aim of the module:

- To provide healthcare professionals with the skills and knowledge to assess and manage patients with suspected brain and spine tumours.

#### Synopsis of module content:

- Basics and investigations
- Tumour presentations
- High grade glioma
- Low grade glioma
- Extrinsic lesions
- Pituitary tumours

#### On completion of this module, students will be able to:

1. Critically interpret and apply the evidence base in the assessment and management of patients with central nervous systems tumours.
2. Demonstrate skills to appraise and reflect upon the differing needs of patients with central nervous system tumours.

3. Critically apply combined professional knowledge of neuro-oncology to improve delivery in complex situations.

4. Demonstrate an in-depth understanding of the evidence relating to the diagnosis, investigation, and management of patients presenting with neuro-oncological disorders.

5. Demonstrate leadership skills in coordinating academic activities, engaging and responding to colleagues' academic interrogation.

1. Critically interpret and apply the evidence base in the assessment and management of cerebrospinal fluid (CSF) disorders in children.

2. Demonstrate skills to appraise, reflect upon, and adapt treatments to a range of cerebrospinal fluid disorders in children and adults.

3. Critically apply combined professional knowledge of cerebrospinal fluid disorders and paediatrics to improve delivery in complex situations.

4. Demonstrate an in-depth understanding of the evidence base relating to the diagnosis, investigation and management of CSF disorders/paediatric neurosurgery.

## Module 3 - Cerebrospinal fluid disorders and paediatrics

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### Aim of the module:

- To provide students with the skills and knowledge to assess and manage patients presenting with cerebrospinal fluid (CSF) disorders and paediatric patients.

### Synopsis of module content:

- CSF physiology and raised intracranial pressure
- Adult hydrocephalus
- CNS embryology and developmental disorders
- Paediatric tumours of CNS
- CNS infection
- Assessment and considerations of the paediatric surgical patient

## Module 4 - Neuro-vascular disorders

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### Aim of the module:

- To provide healthcare professionals with the skills and knowledge to assess and manage patients with vascular disorders of the central nervous system.

### Synopsis of module content:

- Neurosurgical vascular anatomy, imaging and clinical correlation
- Cerebral blood flow and subarachnoid haemorrhage
- Cerebral aneurysms
- Vascular anomalies
- Assessment and management of spontaneous ICH
- Assessment and neurosurgical management of cerebral ischaemia



Little did I know that the MSc was going to be a significant stepping stone in my medical career! Both the diploma and MSc were invaluable in terms of expanding my knowledge and management of Diabetes Medicine, but also enhanced my critical thinking and writing skills.

- Dr Kevin Fernando



## Module 5 - The spine and spinal cord

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### Aim of the module:

- To provide students with the skills and knowledge to assess and manage patients with conditions affecting the spine.

### Synopsis of module content:

- Spinal anatomy and imaging
- Spinal trauma and instability
- Spinal tumours
- Degenerative lumbar spine
- Degenerative spine – cervical and thoracic
- Spinal infection and vascular abnormalities

### On completion of this module, students will be able to:

1. Critically analyse the evidence base and available treatments to plan and manage common spinal conditions.
2. Critically appraise common spinal conditions including appropriate examination, assessment and management.
3. Evaluate and apply evidence based practice to the delivery of spinal services and outcome assessment.
4. Demonstrate an in-depth understanding of spinal anatomy and its relation to pathology.
5. Critically appraise and evaluate the evidence relating to the diagnosis, investigation and management of spinal disorders.

## Module 6 - Assessment and management of complications in neurosurgery

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### Aim of the module:

- To provide students with the skills and knowledge to assess and manage the acutely unwell neurosurgical inpatient.

### Synopsis of module content:

- Assessment of postoperative deterioration
- Seizures and epilepsy
- Electrolyte disorders
- Endocrine emergencies
- Post-operative CNS infection
- Systemic post-operative complications

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"When I enrolled into the course I had no idea about the opportunities it would provide me with. Having my first paper published through this course helped me overcome my apprehensions of academic writing and made me more confident to pursue it further. "

- Rutu Dave



### On completion of this module, students will be able to:

1. Critically interpret and apply the evidence base in acute medical neurosurgical emergencies.
2. Demonstrate an advanced knowledge of safe intervention and care in an acute neurosurgical setting.
3. Reflect on learning from prior experience and challenge preconceptions in order to holistically integrate new knowledge in neurosurgical complications.
4. Demonstrate an in-depth understanding of the diagnosis, investigation and management of common complications of neurosurgical interventions.
5. Implementation of evidence into practice.
6. Coordinate, engage and evaluate clinical debate with colleagues.

## Teaching Methods

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Our courses are conducted entirely online through self-directed distance learning. However, you will receive guidance throughout with tutor-stimulated academic discussions, which are based on clinically-rich case scenarios. These usually occur within groups of 10-15 students, allowing you to clearly communicate with both your tutor and fellow students.

You will participate in a combination of group and individual activities, which are recorded in a reflective journal. This innovative teaching method enables you to envisage the translation of your studies into your every day work and practice.

Our dedicated Student Support Team are also available to help with any problems you may face. From navigating our online platform to advising you on deadlines, our team can assist with any questions or challenges you may have along the way.

## Study Skills week

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Once you have secured your place on the course, you will be invited to a Study Skills week webinar. This will give you the opportunity to participate in workshops on Harvard referencing, scientific and reflective writings, and levels of evidence in preparation for your studies. It is not compulsory for you to attend our Induction Day but it is recommended, as it'll provide you with a sturdy introduction to the course.

# Module 7 - Professional Project

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## Aim of the module:

- To prepare students for an independent research-based project by developing skills in selecting, appraising, discriminating, using evidence and appropriate research/investigative methods to address relevant topics for investigation. The professional project module provides students with an opportunity to complete an important, substantial and potentially publishable study of their own choosing.

## Synopsis of the module:

- Quantitative Studies
- Statistical Analysis Interpretation
- Interpreting the Evidence
- Meta-analysis and Systematic Reviews
- Qualitative Studies
- Evidence Appraisal: Interpreting, Weighing and Synthesizing the Evidence
- Audit, Governance and Quality Improvement, Health Economics
- Preparing a Research Proposal: Research Committees, Consent, Ethics, Probity, and Literature Review

Following the research methods, students will submit a professional project proposal for their chosen topic, this includes a proposal form and ethics application. Students are given a 4-week period after the research methods to complete this.

Students will then create a piece of work based upon a specific subject-related project relevant to the student's practice. The students will have a further 24-weeks to complete this.

## This project may comprise:

- Systematic literature review and appraisal of the evidence
- Audit of non-patient data/organisational audit
- Review and implementation of evidence-based practice
- Literature review and qualitative or quantitative research proposal
- Case(s)-based and quality of service review with critical appraisal
- Case report, review of literature and organisational assessment
- Secondary data analysis

## On completion of this module, students will be able to:

1. Critically analyse and interpret research to assess its application to delivery/service development.
2. Critically appraise different methodological approaches and tools used to answer research questions in your field of practice.
3. Design and undertake a professional project related to your field of practice in order to produce an extensive piece of literature which may be suitable for peer-reviewed publication.
4. Create evidence-based recommendations to add to the knowledge base of your subject area.

5. Develop a critical understanding of the interrogation of academic literature.
6. Demonstrate an in-depth knowledge of ethical considerations in the performance of research.
7. Demonstrate an in-depth understanding of research methodologies in quantitative and qualitative research.
8. Demonstrate critical evaluation skills enabling an in-depth critique of the academic literature.
9. Demonstrate the ability to create academic work of a publishable standard.
10. Evaluate ethical considerations in research and the process of engagement with ethical committees.

## Teaching Methods

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### **Module 7 - Research Methodologies and Critical Appraisal:**

This module runs over a 12 week period and is designed to develop skills in critical appraisal and knowledge of research methodologies used in Neurosurgery.

The module consists of mandatory formative assessment activities to support your learning and development prior to the professional project module.

### **Professional Project:**

You will be required to produce a piece of work based upon a clinically-related project that is relevant to your practice.

Once you have selected a specific project, you will submit a project summary/proposal of approximately words.

Following the approval of your proposal you will then complete a 10,000 word professional project.

Graduates of this course will receive a Master of Science award from the University of Buckingham, Diploma MSc's collaborative partner.



# Neurosurgery MSc

## Entry Requirements

### Documents required:

- A copy of your updated CV including your address and date of birth.
- A copy of your undergraduate degree certificate.
- The name and email address of someone who is able to provide a reference, this can be a work colleague, employer or former tutor.
- A detailed personal statement explaining why you would like to undertake the course.

Health professionals working within a clinical setting, both UK and overseas, with a related Healthcare Science degree (including international qualifications) are eligible to apply for the MSc in Neurosurgery.

Applicants without the above academic criteria but relevant/suitable experience can apply. Applications will be judged on the individual specifics of background and qualifications including ability to work at postgraduate level (applicants may be asked to submit a piece of work for assessment to confirm that they are able to work comfortably at postgraduate level and demonstrate requisite clinical/professional knowledge).

### Applicants should submit copies of the following with their application:

Proficiency in the English language is also essential to complete our courses. If English is NOT your first language, we ask for proof of competency during the application process. We are able to accept an IELTS overall score of 6.0 (with a minimum of 5.5 for each band) or an equivalent qualification.





## What do our students think?

Since 2010, over 1000 students have progressed their medical career by enrolling in one of our qualifications. We ourselves have learned a lot during this time and continually seek to improve the student learning experience. Here is what some of our previous students have said:

"I found the online learning very interesting. It enabled me to save money and time."

**Dr Imad Eddin Rahamtalla, Doctor**

"I strongly recommend Diploma MSc to all those busy physicians who are working in remote areas and wish to upgrade their knowledge."

**Dr Junaid Zaffar, Diabetologist**

"The learning was fun and enjoyable. The course was awesome and it increased my confidence."

**Dr Sankar Nath Jha, Assistant Professor**





"I found learning with Diploma MSc interesting, it helped to update my academic knowledge."

**Dr Prasanth Kinattupurayil, Doctor**

"I love that it was flexible and that I could log in at my convenience. I found this course to be very in-depth, informative, challenging and stimulating."

**Kerri-Ann Best PGDip, RD**



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