



MSc Endovascular Neurosurgery (Interventional Neuroradiology) Course Handbook 2014-15 Synopsis of the MSc

- The course, which takes one academic year to complete, is designed to present Endovascular Neurosurgery (Interventional Neuroradiology) within the broader context of neurosciences.
- The theory and application of minimally invasive treatments are taught and are integrated within key areas of Neuroradiology, Neurosurgery and Neurology.
- A central aim is to encourage students to relate to other clinical scientists and to understand the scientific principles underlying this field.
- This is a taught course, with tutorials and practical skills training and Students undertake an agreed research project concurrent with the three terms of the course.
- Students are required to obtain General Medical Council (GMC) registration to practice medicine in the UK and honorary contracts at the teaching Hospitals in order to complete the practical training.

These notes are produced for your general guidance of how the course is organised and examined.

Section 1

Teaching and Supervision

Teaching is provided in weekly term-time tutorials attended by all students with departmental case discussions and individual clinical attachments. Each student will be encouraged to collect material for the logbook and data for their dissertation throughout the course. They are assigned a course supervisor, whose role is to ensure that the subject chosen for the dissertation is appropriate and to provide guidance during the development of this piece of work. Students are assigned to attend clinical sessions during which they assist in patient assessments and treatments. These sessions are under the direct supervision of a designated clinical tutor. Such attachments may include placements to hospitals out of Oxford to which the student will be required to travel. Students are expected to attend relevant departmental review meetings and may assist with out-of-hours work on a voluntary basis. Involvement in clinical practice should not involve more than 50% of the working week during term time.

Students are granted access to patient specific data under the prevalent rules of the University and host hospitals. They are expected to attend training in the protocols governing how such data can be used and stored. The honorary contract is conditional on compliance with GMC and NHS Trust regulations.

If students have any concerns and complaints about any aspects of the course Oxford University has procedures which enable students to seek advice from a number of individuals who have responsibility for different aspects of their well-being. These include supervisors, directors of graduate studies, college tutors or advisors, heads of department, college heads and senior tutors. If resolution of a complaint or appeal, whether formally or informally, is not possible by means of procedures in place within a department or Medical Sciences Division, a student may refer the matter to Oxford University Proctors for formal consideration under the University's regulations for complaints. These procedures are accessible at: <http://www.ox.ac.uk/students/academic/regulations>

Please also refer to Appendix 1 of this document.

Section 2

Specification of Curriculum

These guidance notes are to be read in conjunction with the schedule for papers contained in the Examination Regulations.

The course teaches core theoretical subjects in addition to providing practical training and the



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examinations are designed to test students' knowledge of this theory. The subject areas laid out in the curriculum will be tested in the final examinations. The examiners are responsible for ensuring that the examinations include all areas of the syllabus and tests the student's knowledge of the subjects as described in the curriculum.

The curriculum sets out the parts of the syllabus, which form the essential knowledge for the MSc. These subjects are specifically examined in three written examination papers but are also relevant to the rest of the learning on the course. Thus, while clinical applications of all techniques are not specifically listed in the core syllabus, the student will be expected to acquire an overview of how techniques are used in the practice of Endovascular Neurosurgery and Interventional Neuroradiology and how techniques relate to each other in clinical practice.

Extract from University of Oxford Examination Regulations 2011, covering the complete curriculum [Core Syllabus]

Available at: http://www.admin.ox.ac.uk/examregs/17-40_SPECIAL_REGULATIONS.shtml#subtitle_42

Paper 1: Pathology, Physiology, and Anatomy relevant to Endovascular Neurosurgery and Interventional Radiology

Pathology of lesions amenable to interventional neuroradiological techniques. The natural history of such conditions and the indications for interventional measures. Anatomy of the central nervous system with special reference to vascular anatomy including common variations to the normal pattern. The embryology and phylogeny of the blood supply of the head and spine. Vascular physiology with special reference to the cerebral and spinal circulations. Normal and potential sites of collateral circulation. Endovascular routes to lesions of the head and spine.

Paper 2: Diagnosis in Endovascular Neurosurgery and Interventional Neuroradiology

The clinical and radiological diagnosis of conditions amenable to interventional neuroradiological techniques including recognition of common symptoms and signs associated with such conditions.

Radiological and other imaging techniques for localization and evaluation of cerebral and spinal lesion, including angiography, myelography, CT and MR scanning, Doppler ultrasound (transcranial and intra-operative), and the use of radio-pharmaceuticals. Electrophysiological and cerebral blood flow measurement techniques as well as neurological and cardiovascular monitoring pertinent to interventional neuroradiological procedures.

Paper 3: Interventional Neuroradiological Techniques

Interventional techniques for biopsy, embolization, thrombolysis, and angioplasty. Delivery systems: their construction and applications. Embolization materials including balloons, coils, stents, particulate and liquid embolic agents and their advantages and disadvantages for different applications. Pre-and post-procedural precautions, including indications for treatment, informed consent, and the recognition and management of complications.

The official name, constitution pharmacology, modes of administration, clinical agents used in interventional neuroradiological techniques. Sedation and the provision of analgesia during procedures. In particular the use of anticoagulation, fibrinolytic, and anticonvulsant agents.



Section 3

Assessments

Formative assessments are made during the course. These take the form of an assigned written case description and an imaging reading test set at the end of the first and a further imaging reading test at the end of the second term. The results obtained for the assignment and tests do not form part of the formal assessment for the degree. They are intended to assess the student's progress after the first and second term so that any areas requiring improvement come to light.

Formal assessment for the degree of MSc is through a log book, dissertation on an agreed topic and examination (by written papers and viva voce).

The Degree Examination

These notes are produced for the general guidance of candidates and examiners, about how the curriculum is examined and the marking schema. The regulations are reproduced at the end of this Handbook.

The degree examination is held at the end of the third (or sixth for part-time students) term. The examination consists of three written examination papers, submission of the dissertation, the logbook and an oral examination.

The date of the written examinations is set by the Examination School but is usually around eight or ninth week of Trinity term. The student is required to register to enter for the examinations and their college will be responsible for handling the required registration.

The three papers of the written examination follow the general plan of the curriculum. Each paper is divided into subject areas but the examiners frequently expect candidates to use their knowledge across the range of the subject, i.e. a question apparently drawn from one part of the curriculum may require an answer using information from other parts.

The examiners expect written answers to a high standard of clarity and targeted to the set question. If the student is not accustomed to examination by written answer then they should practice during the course.

The Medical Sciences Division appoints examiners after consideration of their expertise in endovascular neurological therapies. There is an external examiner, who is responsible for ensuring that the examination is conducted fairly.

Students will be asked to submit their dissertation and the logbook by the Chairman of the examination so that the examiners can mark them. Note that it is important to have these finished in advance, so that their preparation does not affect revision for the written papers.

All candidates attend an oral examination. This is the only time that the student is likely to meet all the examiners. Oral examinations are usually around 30 minutes long but may be extended if the Examiners wish. At the oral examination the student may be asked questions on any aspect of the course, written papers, dissertation or log book or any further element of the curriculum.



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The oral examination is usually held around 2-3 weeks after the written papers, at the decision of the Examiners. If a student is aware of any aspect of the examination on which they feel they have performed less well, most especially if they feel they have submitted a poor written answer to any question, they are strongly advised to revise such subjects before the oral examination because the examiners may concentrate their questions to ensure that candidates' knowledge is adequate.

If a resit of the examination is necessary, it is important to note that resit examinations are set up at different times only for extraordinary reasons. Oxford University's usual rule is to insist that candidates take the next formal sitting, i.e. a year later. This may not be a practical proposition, depending on circumstances therefore students are strongly advised to pass first time!

The total marking system currently in use is as follows; dissertation 35%, written papers 25%, oral examination 15%, and log book 25%.

The pass mark is 50% and the Examiners may award a Distinction if the final mark exceeds 70%.

Section 4 Components of the Final Examination

A. Logbook

A logbook of a minimum of 10 case descriptions in which the student has participated in the patient's diagnosis and/or treatment is required. It is intended to give an indication to the examiners of the clinical experience of each student on the course. Each student's supervisor will discuss his or her choice of subject patients. It is important to make these choices in the first two terms so that there is no rush to do this work in the final term.

It is valuable to use the production of the logbook to help with learning on the course. In other words, the student should choose patients with conditions that help with their learning. Suitable examples might include a detailed account of an unusual condition treated by an endovascular or minimally invasive technique or treatments that were unusually complicated. These examples should be chosen to illustrate how different endovascular or minimally invasive techniques are used in clinical neuroradiology practice.

The logbook should demonstrate that the student is capable of assembling information from multiple sources into a coherent presentation. It is advised that students assemble cases and draft the logbook in the first and second terms of the course rather than in the final term when they have to concentrate on preparation for other elements of examination.

The student is required to hand in three copies of the logbook as part of the examination with their dissertation as described below. The text must not exceed 10,000 words (excluding references, legends and acknowledgements). It will constitute 25% of the total marks.

Copies of the logbook should be printed with font size 12 and double spacing and submitted in a soft or hard-back bound book to the Chairman of Examiners.

B. Dissertation

The topic of the dissertation should be considered carefully and discussed in detail with the student's supervisor to ensure that it is appropriate and achievable. The work can be library or laboratory based research and organised to answer a novel question or hypothesis relevant to the subject of the degree.



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The dissertation is a written, bound account of the thesis of up to 15,000 words of text, excluding legends and citations. It will be examined after the written papers have been completed but needs to be handed in prior to the viva voce. A deadline for 'handing in' will be set by the Chairman of Examiners and the student should ensure that all experimentation and data gathering are completed in good time to meet the deadline. It is recommended that the student show any drafts and the final copy to their supervisor prior to final binding.

The Student is required to hand in three copies of the dissertation. It will constitute 40% of the total marks.

Copies of the dissertation should be printed with font size 12 and double spacing and submitted in a hard-back bound book to the Chairman of Examiners.

C. Written Examination

The student is required to take three written examination papers of three hours each. The syllabus for each paper is listed in the Decrees and Regulations. The regulations require that this degree is examined by at least two examiners. It is suggested that each written examination paper should provide a narrow range of question options. The Course Organising Committee recommends that all examiners should draft questions and that those questions selected for use in the examination (at the examiners' meeting) represent a balance of the curriculum across all papers.

Examination papers consist of a series of essay questions and the student will be expected to answer 4-6 questions from a paper of 5-8 questions. These are intended to test knowledge of the core syllabus and will constitute 25% of the total marks.

The questions aim to demonstrate the level of learning achieved. It should demonstrate a student's understanding of both principle and detail in the answers. Each question will be marked equally.

The following specimen questions are offered as a general guide only.

Specimen Examination Paper 1 (Pathology, Physiology and Anatomy Relevant to Interventional Neuroradiology)

1. Describe persistent primitive arterial connections between the anterior and posterior cerebral circulations that may be found in human adults. What are the implications of their findings for the health of an individual?
2. Describe potential routes of blood flow to the internal carotid artery from branches of the internal maxillary artery.

How is cerebral blood flow regulated in the healthy adult? What factors may influence these processes after spontaneous intracranial haemorrhage?

Specimen Examination Paper 2 (Diagnosis in Endovascular Neurosurgery and Interventional Neuroradiology)

1. A patient is referred 10 days after aneurysmal subarachnoid haemorrhage because of acute weakness of the right leg. How would you investigate and treat this complication? 5 of 9



2. Describe methods of classifying brain arteriovenous malformations. Briefly discuss the benefits of one classification.
3. A patient presents with monocular visual loss following a road traffic accident. Investigations reveal a cavernous carotid fistula. Describe a management plan for the investigation and treatment of such a patient.

Specimen Examination Paper 3 (Endovascular Neurosurgery and Interventional Neuroradiological Techniques)

1. What types of coils are used in Interventional Neuroradiology? In what conditions are coils used?
2. What techniques are used to occlude large vessels? Which is your preferred technique and why?
3. A patient is referred for embolisation prior to resection of a para-sellar meningioma. Describe the procedure for embolisation and explain your choice of catheters and embolisation devices.

C. Oral Examination (viva voce)

The student is required to take an oral examination at which the examiners can ask questions about any of the components of the examination. This is an opportunity to demonstrate knowledge and to correct any potential misinterpretation of the submitted work.

This will constitute 15% of the total marks.

Section 5

Plagiarism

The University's definition of Plagiarism:

“Plagiarism is the copying or paraphrasing of other people's work or ideas into your own work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition. Collusion is another form of plagiarism involving the unauthorised collaboration of students (or others) in a piece of work.”

The document on page 7 should be completed and submitted with the log book, while the document on page 8 should be completed and submitted with the dissertation.

For more information on Plagiarism please visit the university webpages on <http://www.ox.ac.uk/students/academic/goodpractice/about/>



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NUFFIELD DEPARTMENT OF SURGICAL SCIENCES**

DECLARATION OF AUTHORSHIP

This certificate should be completed and placed in a sealed envelope, bearing on the outside your examination number only, addressed to the Chairman of Examiners, MSc Endovascular Neurosurgery (Interventional Neuroradiology), and taken by hand to the Examination Schools in the High Street.

Name (in capitals):

Candidate number:

College (in capitals):

[Supervisor/Adviser:]

Title of logbook (in capitals):

Word count: _____

Please tick to confirm the following:

I am aware of the University’s disciplinary regulations concerning conduct in examinations and, in particular, of the regulations on plagiarism.

The logbook I am submitting is entirely my own work except where otherwise indicated.

It has not been submitted, either wholly or substantially, for another Honour School or degree of this University, or for a degree at any other institution.

I have clearly signalled the presence of quoted or paraphrased material and referenced all sources.

I have acknowledged appropriately any assistance I have received in addition to that provided by my [supervisor/adviser].

I have not sought assistance from any professional agency.

I agree to retain an electronic version of the work and to make it available on request from the Chair of Examiners should this be required in order to confirm my word count or to check for plagiarism.

Candidate’s signature: Date:

[Additional signature: Date:]



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Name (in capitals):

Candidate number:

College (in capitals):

[Supervisor/Adviser:]

Title of thesis (in capitals):

Word count: _____

Please tick to confirm the following:

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I agree to retain an electronic version of the work and to make it available on request from the Chair of Examiners should this be required in order to confirm my word count or to check for plagiarism.

Candidate's signature: Date:

[Additional signature: Date:]



**Extract from University of Oxford Examination Regulations
Notes for Guidance of Examination Candidates**

Available at: http://www.admin.ox.ac.uk/examregs/17-40_SPECIAL_REGULATIONS.shtml#subtitle_42

1. The Medical Sciences Board shall elect for the supervision of the course an organizing committee which shall have the power to arrange lectures and other instructions.
2. Every candidate must follow for at least three terms or, in the case for part-time students, for at least six terms, a course of instruction in Endovascular Neurosurgery (Interventional Neuroradiology).
3. Candidates will be required to present themselves for written and oral examination and to submit a logbook and a dissertation in prescribed form on an approved topic.
4. Candidates will be required: To take three papers of three hours each:

Paper 1 Pathology, Physiology and Anatomy relevant to Endovascular Neurosurgery and Interventional Neuroradiology

Paper 2 Diagnosis in Endovascular Neurosurgery and Interventional Neuroradiology

Paper 3 Interventional Neuroradiological Techniques Examination questions will reflect aspects of the subject as described in the schedule.

5. Candidates must be registered with the General Medical Council, hold an appropriate contract with the National Health Service, and have had appropriate experience in Diagnostic Radiology and/or Neurosurgery or Neurology.
6. Each candidate will be required to submit a log book for examination. They are advised to submit a draft to the Course Director by the end of the second term, or, in the case of part-time students, by the end of their fourth term for review. The final log book will be submitted to the examiners as part of the candidate's examination in the final term.
7. Each candidate will be required to submit a dissertation of no more than 15,000 words on a subject selected in consultation with the candidate's supervisor and approved by the organizing committee. The dissertation may vary from an account of original research work to a survey of the literature. Dissertations which reproduce substantially work submitted in the other written assignments will not be admissible.
8. Three word-processed and appropriately bound copies of the dissertation must be delivered to the Chair of the examination by a date prescribed, together with the log book as described above. The examiners shall retain two copies of the dissertation of each candidate who passes the examination, for deposit in the departmental library.
9. An oral examination will be held and this may include questions on the candidate's dissertation, logbook, or written papers.
10. The examiners may award a distinction for excellence in the whole examination.



Appendix 1

UNIVERSITY OF OXFORD

Complaints and academic appeals within the Nuffield Department of Surgical Sciences (NDS)

1. The University, the Medical Sciences Division and the Nuffield Department of Surgical Sciences all hope that provision made for students at all stages of their programme of study will make the need for complaints (about that provision) or appeals (against the outcomes of any form of assessment) infrequent.
2. However, all those concerned believe that it is important for students to be clear about how to raise a concern or make a complaint, and how to appeal against the outcome of assessment. The following guidance attempts to provide such information.
3. Nothing in this guidance precludes an informal discussion with the person immediately responsible for the issue that you wish to complain about (and who may not be one of the individuals identified below). This is often the simplest way to achieve a satisfactory resolution.
4. Many sources of advice are available within colleges, within faculties/departments and from bodies like OUSU or the Counselling Service, which have extensive experience in advising students. You may wish to take advice from one of these sources before pursuing your complaint.
5. General areas of concern about provision affecting students as a whole should, of course, continue to be raised through Joint Consultative Committees or via student representation on the faculty/department's committees.

Complaints

6. If your concern or complaint relates to teaching or other provision made **by NDS**, then you should raise it with the chairman of the Course Committee (Professor J V Byrne) or with the Director of Graduate Studies (Professor J Austyn) as appropriate. Within NDS the officer concerned will attempt to resolve your concern/complaint informally.
7. If you are dissatisfied with the outcome, then you may take your concern further by making a formal complaint to the University Proctors. A complaint may cover aspects of teaching and learning (e.g. teaching facilities, supervision arrangements, etc.), and non-academic issues (e.g. support services, library services, university accommodation, university clubs and societies, etc.). A complaint to the Proctors should be made only if attempts at informal resolution have been unsuccessful. The procedures adopted by the Proctors for the consideration of complaints and appeals are described in the Proctors and Assessor's Memorandum [<http://www.admin.ox.ac.uk/proctors/pam/>] and the relevant Council regulations [<http://www.admin.ox.ac.uk/statutes/regulations/>]
8. If your concern or complaint relates to teaching or other provision **made by your college**, then you should raise it either with your tutor or with one of the college officers, Senior Tutor, Tutor for Graduates (as appropriate). Your college will also be able to explain how to take your complaint further if you are dissatisfied with the outcome of its consideration.

Academic appeals

9. An appeal is defined as a formal questioning of a decision on an academic matter made by the responsible academic body.



10. For undergraduate or taught graduate courses, a concern, which might lead to an appeal, should be raised with your college authorities and the individual responsible for overseeing your work. **It must not be raised directly with examiners or assessors.** If it is not possible to clear up your concern in this way, you may put your concern in writing and submit it to the Proctors via the Senior Tutor of your college. As noted above, the procedures adopted by the Proctors in relation to complaints and appeals are on the web [<http://www.admin.ox.ac.uk/statutes/regulations/>].
11. For the examination of research degrees, or in relation to transfer or confirmation of status, your concern should be raised initially with the Director of Graduate Studies (Professor J Austyn). Where a concern is not satisfactorily settled by that means, then you, your supervisor, or your college authority may put your appeal directly to the Proctors.
12. Please remember in connection with all the cases in paragraphs 5 - 7 that:
 - (a) The Proctors are not empowered to challenge the academic judgement of examiners or academic bodies.
 - (b) The Proctors can consider whether the procedures for reaching an academic decision were properly followed; i.e. whether there was a significant procedural administrative error; whether there is evidence of bias or inadequate assessment; whether the examiners failed to take into account special factors affecting a candidate's performance.
 - (c) On no account should you contact your examiners or assessors directly.
13. The Proctors will indicate what further action you can take if you are dissatisfied with the outcome of a complaint or appeal considered by them.

Current as at TT2015