



UNIVERSITY OF
EXETER

MEDICAL IMAGING
(DIAGNOSTIC RADIOGRAPHY)
UNDERGRADUATE STUDY 2015 ENTRY

KEY INFORMATION AND ENTRY REQUIREMENTS

	UCAS CODE	TYPICAL OFFER
BSc Single Honours Medical Imaging (Diagnostic Radiography)	B821	AAB-BBC; IB: 34-28

You must have undertaken a minimum of two days and up to one weeks' work experience in an Imaging Department within a district general hospital or larger hospital. All shortlisted applicants will be invited to attend an interview. Offers for this degree will be conditional upon students completing an Enhanced Disclosure and Barring Service (DBS) check, which is deemed satisfactory, and fulfilling health assessment requirements.

If you are an international student you should consult our general and subject-specific entry requirements information for A levels and the International Baccalaureate, but the University also recognises a wide range of international qualifications. You can find further information about academic and English language entry requirements at www.exeter.ac.uk/ug/international

Funding

All students who fulfil residency requirements will have their tuition fees paid by the NHS and are eligible to apply for a means-tested NHS bursary. For more information, contact the NHS Student Bursary Unit: www.nhsbsa.nhs.uk; tel: 0845 358 6655, email: nhs-sgu@ukonline.co.uk

For information on the application, decision, offer and confirmation process, please visit www.exeter.ac.uk/ug/applications

For further details on all our entry requirements, please see our Medical Imaging pages at www.exeter.ac.uk/ug/medical-imaging

STREATHAM CAMPUS, EXETER

Website: www.exeter.ac.uk/ug/medical-imaging

Email: medicalimaging@exeter.ac.uk

Phone: +44 (0)1392 725655



MEDICAL IMAGING

1st for Radiography in *The Times* and *Sunday Times Good University Guide 2014*

98% of Medical Imaging students in graduate level employment or further study within six months of graduating¹

2nd for Medical Technology in *The Complete University Guide 2014*

5th for Overall Satisfaction in the National Student Survey 2013²

Approved by the Society and College of Radiographers and the Health and Care Professions Council

Tuition fees paid by NHS for UK/EU applicants and means-tested NHS bursaries may be available

Clinical placements in 10 hospitals across Cornwall, Devon, Dorset and Somerset

Diagnostic radiographers fulfil an essential role in the modern healthcare setting, using their skills and knowledge to produce detailed, high-quality anatomical and physiological images of what is happening within the human body. These images are used to assist in the diagnosis of injury and disease thereby ensuring that prompt, effective treatment is given.

The world of radiography and the role of the radiographer is constantly changing and developing. The equipment used undergoes continual development and so radiographers need to be able to keep up to date with the latest technological advances. The role of the radiographer has expanded to include reporting on the images produced, providing a written interpretation of any abnormalities seen, and administering contrast agents by means of an intravenous injection. A new career pathway for radiographers was

introduced following a government-led initiative, Agenda for Change. This new pathway introduced Advanced Practitioner and Consultant Radiographer roles to reward clinical and research expertise.

Diagnostic radiographers work in many different branches of medical imaging including:

Projection radiography

Radiography is the production of a 'radiograph' using x-rays. It encompasses a wide range of techniques used throughout the hospital. A radiographer uses their skills and knowledge to modify standard techniques to accommodate the variety of patients encountered, for example, in Accident and Emergency, in theatre and on the wards, as well as the Radiology Department.

Fluoroscopy

Fluoroscopy is an x-ray technique used to produce a combination of dynamic and static images. It is usually used in combination with a contrast agent that has been introduced into the body in order to clearly delineate certain structures such as the gastrointestinal tract or blood vessels.

Computed tomography (CT)

This technique uses x-rays in conjunction with a specialised computer to produce cross-sectional images of the body. Modern computers enable the manipulation of the data recorded by the scanner, to allow the images to be reformatted in other planes or viewed as a three-dimensional image.

Ultrasound

Ultrasound uses high frequency sound to look at certain structures within the body. It is most commonly associated with monitoring the development of the embryo throughout pregnancy but it is also used to look at other structures such as the heart, organs within the abdomen and pelvis, and to evaluate blood flow in vessels.

Nuclear medicine (radioisotope imaging)

This technique uses gamma-rays rather than x-rays. Nuclear medicine uses 'radiopharmaceuticals': a radioactive isotope which is usually bound to another pharmaceutical agent and then introduced into the body. The type of pharmaceutical agent used determines which organs in the body will take up the radiopharmaceutical. Taking images that demonstrate how the radiopharmaceutical has been taken up means that the function of the organ can be assessed. This technique can be used on many different body systems including the renal system, bone and the heart and can also be used for targeting therapy in oncology.

Magnetic resonance imaging (MRI)

This method requires the patient to lie inside a very strong magnet and utilises the magnetic properties of the individual hydrogen atoms within the body. MRI is used to produce detailed images of soft tissue structures within the body including the brain, spine, joints and the abdominal-pelvic organs.

Further information on Diagnostic Radiography can be found at:
www.radiographycareers.co.uk
www.sor.org
www.nhs Careers.nhs.uk

¹ Destination of Leavers from Higher Education Survey (DLHE) of 2011/12 undergraduates

² 95 per cent of Medical Technology students agreed they were satisfied

DEGREE PROGRAMME

BSc Medical Imaging (Diagnostic Radiography)

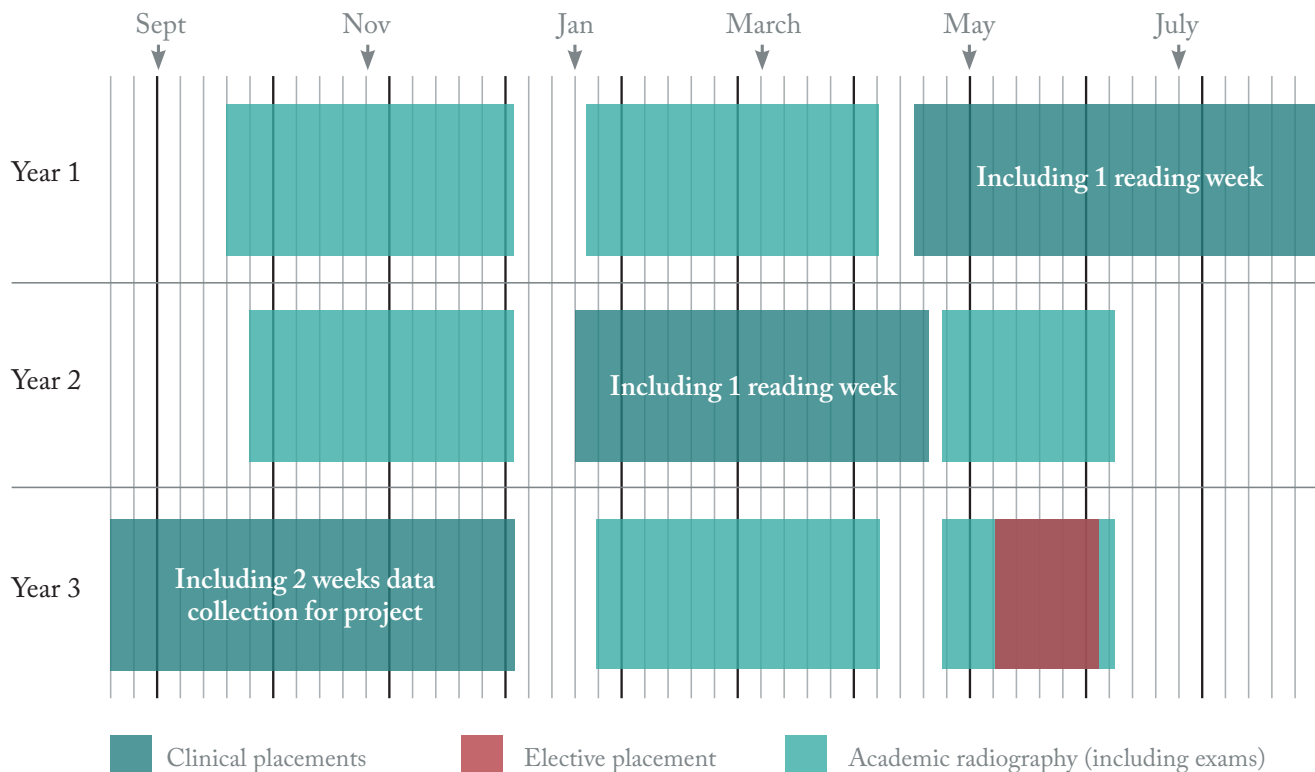
Our BSc in Medical Imaging (Diagnostic Radiography) ensures that, on graduation, you have the skills required to successfully embark on a career as a diagnostic radiographer and to be eligible to apply for registration with the Health and Care Professions Council (HCPC). We educate radiographers to be caring professionals, able to empathise with patients and offer high levels of patient care, while being confident in their technical ability through a strong academic foundation and able to work effectively in a multi-professional environment.

This full-time three-year programme includes clinical placements which stretch into the summer vacation and, as such, this programme is longer than undergraduate programmes in other subjects. This enables us to provide both the academic and practical content in sufficient detail to ensure that, at the end of three years, you are competent to start work as a diagnostic radiographer.

Year 1 This year provides a foundation in the theoretical knowledge and practical skills required for radiography. Academic study provides theoretical knowledge of patient care, anatomy, imaging techniques, professional practice and the science that underpins medical imaging. This is then complemented with a clinical placement that provides practical experience in the safe and effective practice of general and fluoroscopic radiography.

Year 2 Drawing upon the knowledge and skills learnt in the first year, the second year develops further understanding of anatomical and physiological concepts in contemporary clinical imaging practice. You will develop your knowledge of radiation science and gain an appreciation of safe and optimal use of radiation-based imaging techniques. The second year clinical placement provides further practical experience of the safe and effective practice of general and fluoroscopic imaging, and introduces interventional radiography and other imaging modalities.

Year 3 In the final year, you will integrate theory with practice by drawing on your prior experience of imaging modalities and re-interpreting your knowledge of imaging within a scientific framework. During the third clinical placement, you will become an integral member of the multi-professional healthcare team. You will have responsibility for organising your working day and liaising with staff in other departments, and will gain experience of managing an inter-professional team.



LEARNING AND TEACHING

Our teaching encompasses a range of methods, combining traditional lectures and practical work with tutorials both at the University and on placement. The academic blocks provide you with the underpinning theory, linked to practice. We aim to develop you as an independent learner, equipping you with the skills to support yourself in lifelong learning.

Inter-professional learning is delivered as part of the core syllabus and in practice, where you'll be encouraged to develop the insight and skills needed to work effectively in the multidisciplinary hospital setting upon graduation. Our aim is to provide you with experiences and insights that will promote an ethos of multi-professional team working within the clinical setting.

We're actively engaged in introducing new methods of learning and teaching, including increasing use of interactive computer-based approaches through our virtual learning environment, where the details of all modules are stored in an easily navigable website. Students can access detailed information about modules and learning outcomes and interact through activities such as the discussion forums.

Clinical placements

The clinical placements are within Radiology Departments in one of our 10 placement hospitals: Barnstaple, Bournemouth, Plymouth, Dorchester, Poole, Exeter, Taunton, Torbay, Truro and Yeovil. You will spend time at a different placement site each year in order for you to gain a wide range of clinical experience whilst exploring all that the South West has to offer. During your

first placement, you will be working for four and a half days a week, between the hours of 9am and 5pm. In the second and third years you will undertake some weekend and out-of-hours duties. You will always be supervised by a qualified member of staff. If you are eligible to apply for an NHS bursary you may be able to get financial assistance with travel and accommodation costs during your clinical placements.

Research-inspired teaching

We believe that every student benefits from being part of a culture that is inspired by research and being taught by experts. You will discuss the very latest ideas in seminars and tutorials and become actively involved in research yourself. Research plays an important part in developing patient care and radiography as a whole for the future. You will be taught by staff who are at the cutting edge of their research areas, which ensures you receive the most up-to-date knowledge. During your third year, you will undertake a research project in which you will investigate a particular aspect of radiography in detail and may have the opportunity to work alongside research staff on current clinical projects.

Facilities

Within the department we have a fully functional diagnostic x-ray room. As a student you will carry out practical work using this equipment, including positioning and radiographing an anthropomorphic teaching phantom and undertaking quality assurance checks. You will also conduct a variety of experiments such as investigating the use of filters and exploring the impact

of angulation on image quality and dose. You will also have the opportunity to use the equipment for your third year research project. The x-ray room also accommodates two ultrasound machines, ultrasound examinations, and resolution and Doppler string phantoms which you can use for undertaking your research projects. Other University facilities include a magnetic resonance imaging (MRI) scanner, a dual energy x-ray absorptiometry scanner, and quantitative ultrasound scanners, providing researchers and students alike with rich resources for learning and research.

Assessment

Assessment is carried out via a combination of continuous assessment (both academic and clinical) and exams. Your first year doesn't count towards your final degree classification, but you do have to pass it in order to progress. If you study a three-year programme, assessments in the final two years both count towards your classification. In your final year, you will undertake a research project which will count for 25 per cent of the year's marks. Projects provide an opportunity for you to link your clinical experience with the world of research and enable you to demonstrate to employers your depth of knowledge underpinning your practical skills.

Academic support

We are strongly committed to offering high levels of personal and academic student support. You will have a personal tutor at the University and, during your clinical placements, a clinical tutor will visit you fortnightly.

CAREERS

A medical imaging degree is a passport to an interesting job and a fulfilling career. Starting salaries are more than £20,000 per year and there is a grading structure that sees an individual's salary increase as they move up the profession. There are also opportunities to develop into management, advanced practice, consultant, research and academic posts.

Radiographers trained in the UK are recognised as being among the best in the

world and the health providers of many foreign countries recruit in the UK. On graduation you will be eligible to apply for registration as a diagnostic radiographer with the Health and Care Professions Council (HCPC) and for membership of the Society and College of Radiographers.

Preparing students for employment is an essential part of the programme. In addition to the assessed academic and personal skills

integrated within the programme, there is a schedule of additional activities designed to enhance the employability of our graduates. Employability Labs, run with support from radiography department heads in local NHS hospitals, are specifically tailored to the needs of students applying for careers in medical imaging. These include sessions on writing personal statements, completing online application forms, and mock interviews.

MODULES

For up-to-date details of the programme and all the modules, please check www.exeter.ac.uk/ug/medical-imaging

Year 1

Foundations of Patient Care	The role of a professional radiographer is high-quality patient care. Radiographers must not just know what professional conduct is, they must behave in this way both instinctively and at all times. This requires appropriately developed interpersonal skills, and an understanding of aspects of sociology and psychology as they apply to the inter-professional clinical context.
Anatomy and Physiology	This module develops knowledge, understanding and application of human anatomy and physiology. It draws on established knowledge from the scientific disciplines of anatomy and physiology that underpin sound practice in healthcare.
Research and Evidence-Based Professional Practice	This module introduces the principles of evidence-based practice and research methodologies that underpin patient/client care. You will be introduced to the principles of professional practice within health and social care. In the context of evidence-based professional practice, you will develop basic problem solving and reasoning skills. Alongside this you will develop an understanding of professional practice.
Clinical Imaging 1	This module aims to develop knowledge of the technology which supports general and fluoroscopic radiography and its conduct. It also provides knowledge of patient positioning for various parts of the anatomy.
Introduction to Radiation Physics	Through this module you will develop essential mathematical skills and gain knowledge of the essential science underpinning the various radiation imaging modalities. The module also provides introductory knowledge of radiation biology and physics, sufficient to appreciate the legislative framework of justification, optimisation and limitation in control of ionising radiations.
Radiographic Anatomy	This module develops knowledge, understanding and application of biological concepts in the context of contemporary healthcare practice. It draws on established knowledge from the scientific discipline of anatomy that underpins sound practice in healthcare. The discussion of anatomy emphasises how it is demonstrated in diagnostic images.
Practice Placement 1	Professional radiographers must be able to apply their theoretical knowledge and practical skills within an inter-professional clinical context. This placement provides practical experience of the safe and effective practice of general and fluoroscopic radiography. You will develop your patient care skills, and learn to identify professional and management issues and understand how these are inter-related.

Year 2

Clinical Imaging 2	This module develops knowledge of the science and technology underpinning the x-ray sources, image receptors and supporting facilities used in clinical radiology. The module also provides understanding of the details of a number of advanced 2D x-ray imaging applications now becoming widely available in imaging departments. Encompassed within this module are the example situations of angiography and neurology, utilisation of x-ray interventional procedures and use of x-ray facilities in wards and A&E departments.
Clinical Imaging 3	This module develops knowledge of the science and technology underpinning 2D and 3D radionuclide imaging, ultrasound and MRI, and the principles of safe practice in using these various modalities. The module also provides practical training in interpretation of the images that arise from these modalities.
Project Studies 1	This module develops a sound understanding of research terminology, methods and principles. It is designed to enable you to understand different research designs, to evaluate the research literature and to prepare you to undertake research at undergraduate level.
Science for Medical Imaging	This module develops a range of basic mathematical skills and knowledge of the essential science which underpins the various imaging modalities. The module also aims to provide sufficient knowledge of introductory radiation biology and physics to allow an appreciation of safe and optimal use of radiation imaging techniques.
Pathology for Radiographers	This module develops knowledge, understanding and application of anatomical and physiological concepts in the context of contemporary clinical imaging practice. It introduces biological and sociological themes related to health, including their relationship to healthcare practice.
Practice Placement 2	This placement provides further practical experience of the safe and effective practice of general and fluoroscopic imaging. It introduces interventional radiography and other imaging modalities. You will develop your patient care skills and learn to handle more complex situations.

Year 3

Practice Placement 3

During this third, and final placement you will become an integral member of the multi-professional healthcare team; competent to deal with a full range of patients using a wide range of modalities. You will have responsibility for organising your working day and liaising with staff in other departments, and will gain experience of managing an inter-professional team.

Project Studies 2

This module will develop your skills in self-directed and group study. You will plan, undertake and evaluate a research project and write it up in a format suitable for publication.

Skeletal Image Interpretation

Advanced radiography requires an understanding of image interpretation and its applications. This module draws on established knowledge from the scientific disciplines of anatomy, radiographic anatomy and pathophysiology that underpin image interpretation. You will develop the fundamental skills that underpin the writing of image comments.

Digital Image Processing for Radiographers

In this module, you will develop a level of mathematical skill sufficient to analyse complex waveforms and appreciate the statistical consequences of the information stored in an image. You will develop knowledge of the underlying algorithms used by image manipulation tools and the extent to which the use of these affect the qualities of the image. Finally, you will learn how each and every component of the imaging chain, from presentation of patient through to the interpretive skills of the radiographer/radiologist, can affect the predictive diagnostic capabilities of a method.

Professional Skills for Radiographers

You will develop your knowledge of the legislative and professional framework that governs radiographers together with associated managerial, professional and inter-professional issues encountered in clinical practice. The resulting framework of knowledge and skills supports safe and equitable practice.

You will learn about the skills needed to use contrast-enhancing agents safely, about the complications associated with contrast media, the mitigating measures available against anaphylaxis and the various means that are available for dealing with adverse reactions.



This course teaches you much more than just the practical aspects of radiography. The lecture content is so varied and the clinical placements give you the chance to develop your practical skills and put the theory into practice. The hands-on approach to learning through the clinical placements was, for me, the most enjoyable part of the course.

I now work as a diagnostic radiographer at the Royal Devon and Exeter Hospital. The University provided employability workshops and lectures on everything from how to fill in application forms to interview techniques to help me to secure my first job. My job is so varied; each day brings a new challenge ensuring that you are always kept on your toes. Developments in new technology mean that radiography is constantly changing and advancing, so there is always something new to learn.

There are also numerous options for me to advance my career. There are opportunities for me to specialise in a particular clinical area, for example Ultrasound, CT, or MRI, or go into management. There are also academic routes such as research and teaching. Overall, diagnostic radiography is a rewarding and fulfilling career.

Katie Hart, Diagnostic Radiography Graduate

ABOUT THE UNIVERSITY OF EXETER

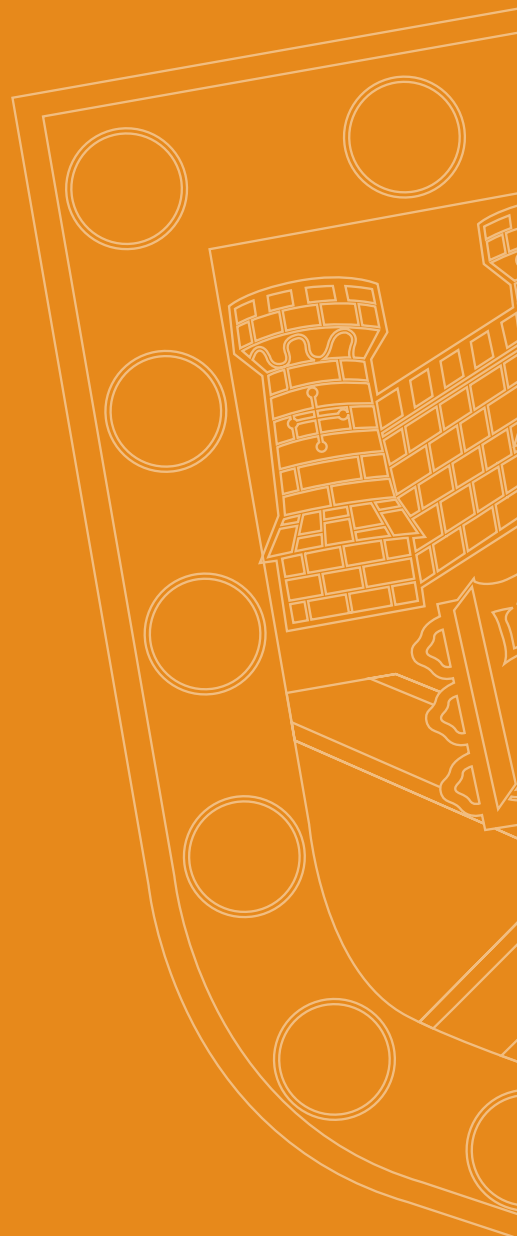
We are in the top 1% of universities in the world

We rank 8th in *The Times and The Sunday Times University Guide 2014* and 10th in *The Complete University Guide 2014*

We have ranked in the top 10 of the National Student Survey every year since it launched

Our teaching is inspired by our research, nearly 90% of which was ranked as internationally recognised in the 2008 Research Assessment Exercise

84% of our students graduate with either a First or 2:1 degree



VISIT US TO FIND OUT MORE

Open Days

Tuesday 10 June 2014

Saturday 6 September 2014

Campus Tours

We run campus tours at the Streatham Campus each weekday and at St Luke's Campus on Tuesdays and Fridays, during term time. You'll be shown round by a current student, who'll give you a first-hand account of what it's like to live and study at the University of Exeter.

For full details and to book your place, contact us on:

www.exeter.ac.uk/opensdays

Phone: +44 (0)1392 724043

Email: visitus@exeter.ac.uk

Selection Process

If you fulfil our entry requirements, you will be invited for interview, which will give you the chance to find out more about your programme and department. While this opportunity to visit includes a campus tour and formal introduction to the department, much emphasis is placed on a more informal period for questions and answers. A number of our current students also take part on these days, leading tours and giving you the opportunity to ask them what studying at Exeter is really like! Interview Days take place during the period of November to March.

www.exeter.ac.uk/ug/medical-imaging



Find us on Facebook and Twitter:
www.facebook.com/exeteruni
www.twitter.com/uniofexeter

This document forms part of the University's Undergraduate Prospectus. Every effort has been made to ensure that the information contained in the Prospectus is correct at the time of going to print. The University will endeavour to deliver programmes and other services in accordance with the descriptions provided on the website and in this prospectus. The University reserves the right to make variations to programme content, entry requirements and methods of delivery and to discontinue, merge or combine programmes, both before and after a student's admission to the University. Full terms and conditions can be found at www.exeter.ac.uk/undergraduate/applications/disclaimer

