



Medical Radiation Sciences

Undergraduate Courses
Victoria, NSW & ACT, 2019

OVERVIEW

This document has been developed to assist students and their families in researching undergraduate Medical Radiation Science courses at Victoria, Canberra, and NSW based universities. Written by Sandie McKoy, Catholic College Wodonga.

- **Indicative ATAR** = the lowest selection rank (ATAR plus adjustment factors such as academic and equity adjustments) for the 2019 Round 1 intake. Please only use indicative ATARs as a guide as they may change for the 2020 intake.
- **English prerequisite:** EAL = English as an Additional Language. 'Any other English' includes English, English Language and Literature.
- **Course information, selection criteria and prerequisites** – may change throughout the year. Please use the ones listed as a guide only and use the university websites for the most up to date information.

Index

Nuclear Medicine	Pages 2 - 3	RMIT, Charles Sturt University, University of Newcastle
Radiation Therapy	Pages 4 – 5	RMIT, Monash University, Charles Sturt University, University of Newcastle
Medical Imaging	Pages 6 - 8	Monash University, RMIT, Deakin University, Charles Sturt University, University of Newcastle, University of Sydney
Medical Ultrasound	Pages 9 - 10	CQUniversity, Monash University, Charles Sturt University, University of Canberra

Key Websites

Victorian Society of Nuclear Medicine Technologists
Australian Society of Medical Imaging and Radiation Therapy
A Career in Radiation Oncology (Radiation Therapy)
Australian Sonographer Accreditation Registry
Job Outlook: Medical Imaging Professionals

<https://bit.ly/2IFQxcc>
<https://bit.ly/2IDVOoN>
<https://bit.ly/2IDEQHc>
<https://bit.ly/2IFIEaK>
<https://bit.ly/2J0TNT2>

NUCLEAR MEDICINE

RMIT

Bachelor of Applied Science (Medical Radiations) - Nuclear Medicine: 3-years, Bundoora, <https://bit.ly/2ojmZZf>

Indicative ATAR: 82.55.

Prerequisites: minimum study scores of: 30 in English (EAL) or 25 in any other English; 20 in both Chemistry and either Mathematical Methods or Specialist Mathematics.

“Medical radiations is a rapidly advancing healthcare discipline involving the application of ionising and non-ionising radiation for the diagnosis and treatment of injury and disease.

Nuclear medicine uses very small amounts of radioactive materials to diagnose and treat disease. Common nuclear medicine applications include cardiac stress tests to analyse heart function, bone scans for orthopaedic injuries, and lung scans for blood clots.

Clinical practice is a major focus of this program. You'll undertake work placement in each year of the degree, spending a total of 22 weeks of the three-year degree in supervised clinical practice, making you work-ready upon graduation. You'll gain experience in a range of clinical settings including large public teaching hospitals, small private practices, as well as metropolitan and rural centres.

The program is taught by professionals with current research and industry experience. Learning and teaching approaches include lectures, seminars, workshops, presentations and group discussion work”.

Charles Sturt University

Bachelor of Medical Radiation Science (With Specialisations) – Nuclear Medicine, 4-years, Wagga Wagga, Port Macquarie, <https://bit.ly/2G6pKZG>

Indicative ATAR: 70.00.

Assumed knowledge: Mathematics and Physics.

Note: this course may change for the 2020 intake. Check the Charles Sturt University website for updates.

“The training undertaken in this course involves biological tracers (radiopharmaceuticals) used for the diagnosis and treatment of various diseases. This specialisation details the administration and imaging of these radiopharmaceuticals within the patient to detect physiological abnormalities and deliver appropriate treatment.

This specialisation requires formal training and education in clinical, instrumentation and computing aspects of single photon emission computed tomography (SPECT), PET, CT, MRI, ultrasound and newer hybrid systems (SPECT/CT and PET/CT).

Equipment used by medical radiation scientists has become increasingly sophisticated over the past decade and a detailed knowledge of equipment function, operation and computer interfacing is required.

With an emphasis on the techniques and equipment used in diagnostic radiography, nuclear medicine and radiation therapy including general radiography, screening, computed tomography (CT), magnetic resonance imaging (MRI), sonography, positron emission tomography (PET), this degree will provide you with a rewarding and fulfilling career.”

NUCLEAR MEDICINE

University of Newcastle

Bachelor of Medical Radiation Science (Honours) (Nuclear Medicine): 4-years, Newcastle - Callaghan, <https://bit.ly/2LnYmF8>

Indicative ATAR: 73.65 (2018 intake). Special selection procedures apply for Aboriginal and Torres Strait Islander applicants. For details call (02) 4921 6863

Assumed Knowledge: Any two units of English plus Mathematics or Physics.

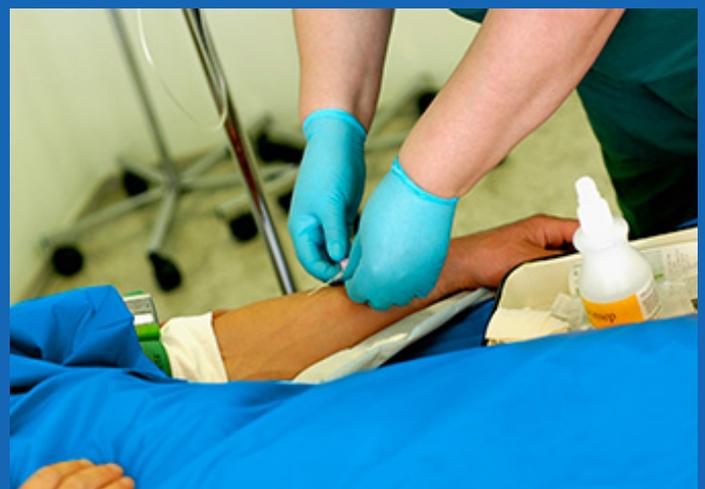
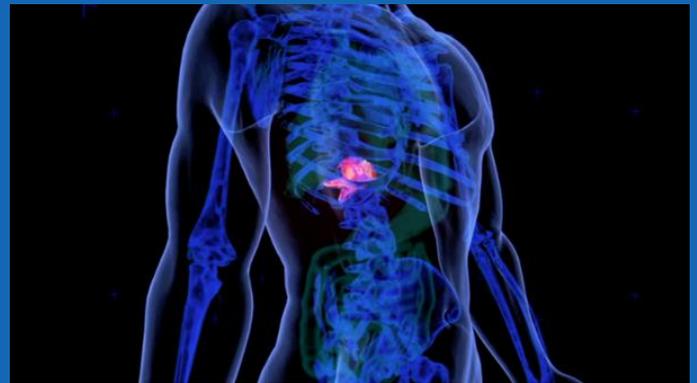
“Nuclear medicine scientists apply medical imaging technologies and radioactive chemical compounds (called radiopharmaceuticals) to image the function or physiology of the body.

They perform brain and cardiac function studies, cancer detection studies and work with patients, including elite athletes, to measure the extent of an injury or illness.

The technology is rapidly evolving and includes PET, SPECT, scintigraphy and hybrid PET/CT scanning. Nuclear medicine can also be used in the treatment of some cancers where radiopharmaceuticals are targeted to destroy diseased tissues.

Students will complete approximately 40 weeks of practical experience throughout the program in a variety of settings both locally and nationally. Travel, accommodation and related expenses for clinical placements will be the responsibility of the student.

Students will attend on-campus simulation classes in state-of-the-art training laboratories to prepare for, and supplement, the clinical placement experience”.



RADIATION THERAPY

RMIT

Bachelor of Medical Radiation Science (Honours) (Radiation Therapy): 3-years, Bundoora, <https://bit.ly/2ojmZZf>

Indicative ATAR: 87.7.

Prerequisites: completion of Units 1-2 or Units 3-4 Biology or Chemistry; and minimum study scores of 30 in English (EAL) or 25 in any other English; and 20 in Mathematical Methods or Specialist Mathematics.

“Medical radiations is a rapidly advancing healthcare discipline involving the application of ionising and non-ionising radiation for the diagnosis and treatment of injury and disease.

Radiation therapy is one of the main treatment options for patients diagnosed with cancer, and contributes to the high cancer cure rates in Australia.

Radiation therapists combine knowledge of the physical and biomedical sciences in order to design and verify appropriate treatment plans, as well as conduct research.

Clinical practice is a major focus of this program. You'll undertake work placement in each year of the degree, spending a total of 22 weeks of the three-year degree in supervised clinical practice, making you work-ready upon graduation.

You'll gain experience in a range of clinical settings including large public teaching hospitals, small private practices, as well as metropolitan and rural centres.

You'll study in facilities with the latest medical radiations and IT equipment. This includes a VERT - Virtual Environment of Radiation Treatment Room. Through captivating 3D views and life-size visualisations, VERT offers radiation therapy students a unique platform in which to learn”.

Monash University

Bachelor of Radiation Sciences: 3-years, Clayton, <https://bit.ly/2kdBQ5M>

Indicative ATAR: 84.75.

Bachelor of Radiation Sciences (Indigenous Entry): 3-years, Clayton. Selection – ATAR + a Supplementary Form.

Prerequisites: minimum study scores of: 30 in English (EAL) or 25 in any other English; and 30 in Further Mathematics or 25 in Mathematical Methods or Specialist Mathematics.

Upon graduation, you will need to complete the Master of Radiation Therapy to enable you to apply for general registration as a radiation therapist with the Australian Health Practitioner Regulation Authority, <https://bit.ly/2kmLDGR>

“Radiation therapy is an exciting healthcare field that uses ionising radiations for the treatment of cancer and benign conditions.

Radiation therapists are key members of professional teams that manage patients' treatments, in increasing demand due to the ageing population, expansion of services in regional Australia, and organic growth of the industry.

The equipment used is increasingly sophisticated and the adaptable therapist needs a thorough knowledge of its function, operation and computer interfacing.

In this course you'll develop the scientific bases of radiation therapy and medical imaging modalities such as radiography, nuclear medicine, ultrasound, CT and MRI. You will also develop highly relevant clinical skills, learn about cancer management strategies and patient care, consider psychological and ethical aspects of health care and develop cultural and communicative competence.”

RADIATION THERAPY

Charles Sturt University

Bachelor of Medical Radiation Science (With Specialisations) – Radiation Therapy, 4-years, Wagga Wagga, Port Macquarie, <https://bit.ly/2G6pKZG>

Indicative ATAR: 70.00.

Assumed knowledge: Physics, Mathematics.

Note: this course may change for the 2020 intake. Check the Charles Sturt University website for updates.

“Explore a career as a radiation therapist in public hospitals or private radiation oncology practices in any state of Australia, as well as overseas. Career options may also include specialisation in areas such as tomotherapy and IMRT.

With an emphasis on the techniques and equipment used in diagnostic radiography, nuclear medicine and radiation therapy including general radiography, screening, computed tomography (CT), magnetic resonance imaging (MRI), sonography, positron emission tomography (PET), this degree will provide you with a rewarding and fulfilling career.

To make sure you are experienced in using the equipment and techniques found in the workplace, our facilities include CR units, a clinical ultrasound machine, Philips PRISM 1000 Gamma camera and multiple Odyssey VP/FX/LX computers, Vita medical technegas ventilation equipment, GE 400AC SPECT Gamma Camera and camstar computer, fully equipped radiopharmacy laboratory and ADAC - Sun Sparc Ultra - 10 interfaced computer system for image analysis, VIRTUAL 3D radiation therapy simulation software, and Elekta Monaco planning software for 3D radiation therapy planning.

CSU is seeking accreditation of this course so that graduates will be eligible to register with the Medical Radiation Practice Board of Australia (MRPBA).

University of Newcastle

Bachelor of Medical Radiation Science (Honours) (Radiation Therapy): 4-years, Newcastle - Callaghan, <https://bit.ly/2LmooJ2>

Indicative ATAR: 76.60 (2018 intake).

Assumed Knowledge: Any two units of English plus Mathematics or Physics.

“Also known as radiotherapy, radiation therapy uses sophisticated radiation technology to target and destroy cancer cells and shrink tumours – allowing cancer to be treated, managed and cured. It can be the main treatment, or used alongside other treatments such as surgery or chemotherapy”.

Why study with us?

Our graduates get jobs: 90% of our radiation therapy students from 2016 secured employment within four months of graduating.

Hands-on experience: Complete 42 weeks of clinical placements in public and private cancer care hospitals and facilities.

Learn from research leaders: University of Newcastle is a global leader in medical and health science research, keeping you on the forefront of breaking research discoveries.

World-class facilities: Our 3D radiation therapy simulation lab is the first of its kind in Australia, featuring a virtual linear accelerator machine and radiation therapy planning room.

Tick the boxes for professional registration with the Australian Health Practitioner Regulation Agency.

MEDICAL IMAGING/RADIOGRAPHY

Monash University

Bachelor of Radiography and Medical Imaging (Honours), 4-years, Clayton, <https://bit.ly/2INQ5Ju>

Indicative ATAR: 98.6.

Prerequisites: minimum study scores of: 35 in English (EAL) or 30 in any other English; 25 in Mathematical Methods or Specialist Mathematics; and 25 in Biology or Physics.

“Radiographers facilitate patient diagnosis and management by using X-rays – including CT scanning, ultrasound and magnetic resonance imaging (MRI) – to create diagnostic images for analysis and interpretation. Radiographers are also responsible for implementing best practice imaging protocols.

The practical skills you acquire will be reinforced by placements in a wide variety of clinical institutions, ranging from Victorian rural and regional hospitals to metropolitan Melbourne hospitals and private radiology practices. This is an integrated course in which radiographic physics, imaging technique and methods, radiologic biology and professional skills are closely related and integrated with clinical placements. You'll be instructed by experts in radiography, benefit from a thriving research environment, and have access to general radiography laboratories and the ultrasound skills lab.

The program incorporates clinical placements in each semester concluding with a 24-week paid placement in year four. It is characterised by innovative teaching approaches, including a computer-mediated case-based learning program to assist in clinical decision making; a personal learning and assessment system that includes a clinical e-portfolio; a clinical-relevant scenario-based program focusing on cultural, ethical and moral issues; and a simulated learning environment, where students engage with 'avatars' to support clinical training.”

RMIT

Bachelor of Applied Science (Medical Radiations (Medical Imaging)): 3-years, Bundoora, <https://bit.ly/2ojmZZf>

Indicative ATAR: 94.55.

Prerequisites: completion of Units 1-2 or Units 3-4 Biology or Chemistry; and minimum study scores of 30 in English (EAL) or 25 in any other English; and 20 in Mathematical Methods or Specialist Mathematics.

“Medical radiations is a rapidly advancing healthcare discipline involving the application of ionising and non-ionising radiation for the diagnosis and treatment of injury and disease.

Through medical images such as x-rays, MRI, and ultrasound, radiographers assist in the diagnosis and care of patients. This program combines knowledge of physical and biomedical sciences with technical expertise and patient care.

Clinical practice is a major focus of this program. You'll undertake work placement in each year of the degree, spending a total of 22 weeks of the three-year degree in supervised clinical practice, making you work-ready upon graduation.

You'll gain experience in a range of clinical settings including large public teaching hospitals, small private practices, as well as metropolitan and rural centres”.



MEDICAL IMAGING/RADIOGRAPHY

Deakin University

Bachelor of Medical Imaging, 4-years, Geelong Waurn Ponds, <https://bit.ly/2bH6CTJ>

Indicative ATAR: 89.95.

Bachelor of Medical Imaging (Regional Remote), 4-years, Geelong Waurn Ponds, <https://bit.ly/2bH6CTJ>

Indicative ATAR: 93.75.

Prerequisites for both courses: minimum study scores of: 30 in English (EAL) or 25 in any other English; 25 in either Biology, Chemistry or Physics; 22 in Mathematical Methods or Specialist Mathematics or 30 in Further Mathematics.

“Using the latest equipment, you will learn basic x-ray techniques before advancing to more complex medical imaging procedures such as general radiography, digital vascular imaging, mammography, computed tomography (CT), general ultrasound (U/S) and magnetic resonance imaging (MRI).

You will undertake substantial clinical practice in clinical centres, medical imaging clinics and hospitals, as well as at Deakin’s own state-of-the-art medical imaging training unit. Clinical placements typically take place at facilities across rural and regional areas of south-west Victoria. Interstate placements are available and may require some financial input from the participating student.

Other areas of study include medical radiation science linked to principles of medical imaging, biological sciences, plus important professionalism, communication, ethical and legal aspects of health care that will inform and support your future clinical practice”.

Charles Sturt University

Bachelor of Medical Radiation Science (With Specialisations) – Medical Imaging, 4-years, Wagga Wagga, Port Macquarie, <https://bit.ly/2G6pKZG>

Indicative ATAR: 70.00.

Assumed knowledge: Physics, Mathematics.

Note: this course may change for the 2020 intake. Check the Charles Sturt University website for updates.

“Become a diagnostic radiographer / medical imaging technologist either in public hospitals or private radiology practices in any state or territory of Australia. You could also apply to work in some overseas countries and will be eligible to register with the Medical Radiation Practice Board of Australia (MRPBA).

With an emphasis on the techniques and equipment used in diagnostic radiography, nuclear medicine and radiation therapy including general radiography, screening, computed tomography (CT), magnetic resonance imaging (MRI), sonography, positron emission tomography (PET), this degree will provide you with a rewarding and fulfilling career.

To make sure you are experienced in using the equipment and techniques found in the workplace, our facilities include CR units, a clinical ultrasound machine, Philips PRISM 1000 Gamma camera and multiple Odyssey VP/FX/LX computers, Vita medical technegas ventilation equipment, GE 400AC SPECT Gamma Camera and camstar computer, fully equipped radiopharmacy laboratory and ADAC - Sun Sparc Ultra - 10 interfaced computer system for image analysis, VIRTUAL 3D radiation therapy simulation software, and Elekta Monaco planning software for 3D radiation therapy planning.

MEDICAL IMAGING/RADIOGRAPHY

University of Newcastle

Bachelor of Medical Radiation Science (Honours) (Diagnostic Radiography): 4-years, Newcastle - Callaghan, <https://bit.ly/2l4rfDR>

Indicative ATAR: 87.05 (2018 intake).

Assumed Knowledge: Any two units of English plus Mathematics or Physics.

“Diagnostic radiography is an important first step to diagnosing, treating and managing injuries and disease. Along with pathology, diagnostic radiography is the largest diagnostic test performed.

The medical images you produce will allow patients to be diagnosed accurately, and can directly impact a patient’s treatment plan and overall recovery”.

Why study with us?

Our graduates get jobs: 96% of our diagnostic radiography students from 2016 secured employment within four months of graduating.

Hands-on experience: Complete 42 weeks of clinical placements in public and private centres, preparing you for a successful career in diagnostic radiography.

World-class facilities: Hone your skills using advanced multimodality imaging and post-processing facilities, including CT, MRI, ultrasound, angiography and mammography facilities.

Learn from research leaders keeping you on the forefront of breaking research discoveries.

Tick the boxes for professional registration with the Australian Health Practitioner Regulation Agency.”

University of Sydney

Bachelor of Medical Radiation Science (Honours) (Diagnostic Radiography): 4-years, Sydney - Cumberland, <https://bit.ly/2lSdvNI>

Indicative ATAR: 95.

Recommended Studies: Mathematics plus one of Biology, Chemistry or Physics.

“Use technology to produce world-class medical imaging and provide excellent patient care. In the Bachelor of Applied Science (Diagnostic Radiography) you will learn to use high tech equipment ranging from small mobile X-ray machines to larger units; from MRI and CT scanners to sophisticated cardiac units, enabling timely and accurate patient diagnoses.

As a diagnostic radiography student, you will learn to work closely with other medical and allied health practitioners and to employ a range of technologies to produce medical images that will, help provide an accurate diagnosis and sound patient care.

Diagnostic radiographers work closely with cardiologists in imaging heart disease, with surgeons during a range of operations, and with emergency doctors in the emergency room.

During this four-year degree, you will develop a comprehensive understanding of radiography including imaging technology, radiographic science and radiographic evaluation.

You will undertake significant clinical and professional fieldwork opportunities, providing hands-on experience with real clients in a supervised environment.

This allows you to combine the academic components of the course with the practical abilities required of the profession”.

MEDICAL ULTRASOUND

CQUniversity

Bachelor of Medical Sonography / Graduate Diploma of Medical Sonography: 4-years, Melbourne, <https://bit.ly/2umNDkN>

Indicative ATAR: 83.15.

Prerequisite: Minimum study score of 25 for any English.

Recommended Studies: English, Mathematics Biology, Physics, Science.

“Enhance your employability by studying the Bachelor of Medical Sonography and Graduate Diploma of Medical Sonography – a course that is the first of its kind in Australia and allows you to enter a niche medical profession with no prior degree in health sciences.

Medical Sonographers take diagnostic images using ultrasonic equipment to create still, video or 3D studies of anatomy and diagnostic data. They scan, analyse and modify images to optimize the information and require highly developed patient care and communication skills.

You'll explore abdominal ultrasound, superficial parts, obstetrics and gynecology, vascular studies, musculoskeletal ultrasound and paediatrics”.

Why choose Medical Sonography at CQUni?

- Australia's only four-year combined undergraduate/postgraduate course.
- Fully competent to perform all types of ultrasound (except echocardiography)
- Extensive clinical experience, placed by CQUniversity
- State of the art, purpose built training environments for real-world simulation
- Australian Sonographer Accreditation Regulatory (ASAR) accredited.

Monash University

Master of Medical Ultrasound, 3-years part time, off campus, <https://bit.ly/2GHQmva>

Entry requirements:

To be eligible for admission, you must have either:

- an Australian undergraduate degree in radiography and medical imaging (or equivalent) with at least pass (55%) average or
- a related science or health science degree with at least pass (55%) average, including the study “full-body” human anatomy and physiology (or equivalent bridging course*) or
- qualification/experience or satisfactory substitute that the faculty considers to be equivalent
- and you must also have passed either year 12 level Physics or an equivalent bridging course.

You can exit with a Graduate Diploma in Ultrasound, which meets the qualification requirement for accreditation as a Sonographer in Australia.

Applicants holding degrees in related disciplines (such as Medicine, Nursing, Biomedical Sciences, Radiation Therapy, Nuclear Medicine or other Health Sciences) are assessed on a case-by-case basis.



MEDICAL ULTRASOUND

Charles Sturt University

Graduate Diploma of Medical Ultrasound:

1-year full time, online, <https://bit.ly/2IYwLMv>

Entry Requirements:

 Applicants will:

- hold a medical radiation science, allied health, nursing or medical degree.
- provide evidence that they have access to a clinical ultrasound department under the supervision of an ASAR (Australasian Sonographers Accreditation Registry) accredited sonographer for at least 3 days per week the duration of the course.

Why study at CSU?

Comprehensive program: Beginning with foundational studies in clinical sectional anatomy and the physics and instrumentation of modern ultrasound, you will progress to specialised subjects in abdominal and pelvic, musculo-skeletal, obstetric, vascular, and small parts and paediatric ultrasound.

Reputation for excellence: CSU is a leading provider of medical imaging practitioners in Australia, preparing sonographers, radiographers and nuclear medicine technologists through the School of Dentistry and Health Sciences. We maintain strong industry alliances to ensure you gain up-to-date knowledge and skills on which to build your career.

Supportive study environment: This degree combines the convenience of online study with the acquisition of professional practical skills. As well as having individual access to a range of online study materials and tools, you will experience the benefits of group-based learning and forge professional connections that will extend well beyond your studies.

University of Canberra

Graduate Diploma of Medical Ultrasound:

1-year full time, Canberra - Bruce, <https://bit.ly/2s3ZBBq>

Entry requirements: Applicants must meet one of the following criteria:

- a completed bachelor degree in medical radiation science or
- a completed bachelor degree in any field and successful completion of at least two units of degree level anatomy and physiology.

“Australia is currently experiencing a key shortage of medical sonographers and the University of Canberra offers one of only two courses available in NSW and the ACT.

Used clinically by a wide range of health professionals, ultrasound is used to assist in the diagnosis of a wide range of medical and health conditions.

This course offers a range of study modes to prepare students (from both medical and non-medical backgrounds) for a career in a public or private hospital, radiology practice or in a community health care service.

You will learn about the principles and instrumentation of ultrasound equipment, be able to demonstrate knowledge in scanning techniques and undertake a range of examinations (like abdominal, paediatric and musculoskeletal) in a safe and ethical manner.

Plus, with a variety of further study pathways, a mandatory 2000 hours of formal ultrasound practice, lab-based simulations and/or trainee employment enhancing your clinical competence, you'll be suitably equipped for an ultra-stimulating career.”