THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Centre for Advanced Imaging

cai.centre.uq.edu.au/study

POSTGRADUATE PROGRAMS

The University of Queensland's Centre for Advanced Imaging (CAI) offers postgraduate programs covering all aspects of imaging research from hardware engineering to biomedical imaging, from molecular imaging to spectroscopy. Our students benefit from researchers who are leaders in their fields and from our strong links to MR industry leaders.

Learn within a multidisciplinary environment. All CAI programs reflect the teaching teams' vast experience as medical practitioners, chemists, radiochemists, radiographers, radiopharmacologists, radiophysicists, medical physicists, biologists and engineers.

CAI houses the most comprehensive and advanced range of magnetic reasonance instrumentation in the southern hemisphere, including 3 and 7 Tesla whole body scanners. Complimenting these is a wide range of molecular hybrid imaging capabilities that include pre-clinical MR-PET, clinical and pre-clinical PET-CT, and access to Brisbane's first human MR-PET.

We offer the following postgraduate programs:

- Postgraduate Coursework in Magnetic Resonance Technology
- Master of Molecular Imaging Technology
- Graduate Certificate in Magnetic Resonance and Positron Emission Tomography (MR-PET)

Postgraduate Coursework in

Magnetic Resonance Technology

Graduate Certificate in Magnetic Resonance Technology

Program Code 5036
CRICOS Code 034045F

Program duration

8 units (1 semester full-time or part-time equivalent)

Graduate Diploma in Magnetic Resonance Technology

Program code 5096
CRICOS code 034046E

Program duration

16 units (1 year full-time or part-time (equivalent)

Master of Magnetic Resonance Technology

Program code 5193
CRICOS Code 034047D

Program duration

24 units (1.5 years full-time or part-time equivalent)

Entry requirements

Bachelor degree in mathematics, physics, chemistry, biology, medical imaging, medical radiation, radiography, allied health, biomedical engineering, computer science, or an approved discipline.

Applications on the basis of post-secondary study and work experience in a related field will be individually assessed.

English proficiency

Non-native English speakers must meet UQ's English Language Proficiency. View the policy at future-students.uq.edu.au/english-requirements

Location

The University of Queensland, St Lucia campus or via remote online study.

Delivery mode

Internal or External

Teaching method

Programs are delivered online and on campus. You need a computer with reliable internet and word processing software such as Microsoft Word or Apple Pages. Masters candidates need to have access to a MRI scanner at their workplace or at the Centre by arrangement. Course materials are delivered through Blackboard, UQ's electronic learning management platform.

When to apply

With two intakes per year, your study options are endless. See UQ's Future Students website for admission and enrolment dates for both domestic and international candidates: future-students.uq.edu.au/apply

Why study magnetic resonance technology at CAI?

Magnetic Resonance Technologists are in strong demand. Get the competitive edge by gaining formal postgraduate qualifications in this exciting imaging modality.

No experience in MRI is required for course entry and access to an MRI scanner is not required for the first two levels of the program.

The four core courses of the Graduate Certificate are centred on the physics and technology surrounding magnetic resonance, and from there you can tailor your choice of electives to best suit your interest and practice needs.

Our programs are eligible for Continuing Professional Development points (CPD) from a number of professional bodies world-wide.

Who are the programs designed for?

Our programs are designed for radiographers, biomedical engineers and other health professionals working with Magnetic Resonance Imaging equipment. The programs are aimed at technologists rather than practitioners.

Program of study

Core courses for all programs	
MRES7100	Magnetic Resonance Imaging Fundamentals
MRES7002	Magnetic Resonance Instrumentation
MRES7003	MR Safety Imaging and Monitoring
MRES7400	Pulse Sequence Construction and Image Contrast
Elective courses (Graduate Diploma and Masters)	
ACCT7101	Accounting
MGTS7601	Managing Organisational Behaviour
MGTS7603	Strategic Human Resource Management
MRES7005	Fast Imaging Techniques
MRES7006	Vascular Imaging
MRES7007	Diffusion and Perfusion Imaging
MRES7008	Functional Magnetic Resonance Imaging
MRES7009	Magnetic Resonance Spectroscopy and Applications
MRES7013	Fundamental MRI of the Brain and Spine
MRES7014	Fundamental Musculoskeletal MRI
MRES7016	Cardiac MRI, Techniques and Applications
MRES7017	Breast MRI
MRES7023	Medical Image Processing and Analysis
MRES7024	Advanced Techniques in Magnetic Resonance Imaging
MRES7025	MR Clinical Practice
Graduate Diploma research course (compulsory)	
MRES7010	Minor Project
Masters research courses	
MRES7015	Independent Clinical MRI Project *
MRES7018	Advanced Research Project *

* One research project compulsory at Masters level.

Master of

Molecular Imaging Technology

Program code: 5692
CRICOS code: 096018G

Program duration

24 units (1.5 years full-time or part-time equivalent)

Entry requirements

Bachelor degree in applied science, medical imaging, chemistry, pharmacy, physics, computer science or electrical and biomedical engineering or an approved discipline.

English proficiency

Non-native English speakers must meet UQ's English Language Proficiency. View the policy at future-students.uq.edu.au/english-requirements

Location

The University of Queensland, St Lucia campus or via remote online study.

Delivery mode

Internal or External

Teaching method

Our programs are delivered online and on campus. You need a computer with reliable internet and word processing software such as Microsoft Word or Apple Pages.

When to apply

With one intake per year, students are encouraged to apply in November for admission to the program in the following year.

See UQ's Future Students website for admission and enrolment dates for both domestic and international candidates: future-students.uq.edu.au/apply

Read about our students' experiences and find detailed course information for all programs by visiting **cai.centre.uq.edu.au/study**

Why study molecular imaging at CAI?

Molecular imaging is a form of biomedical imaging rapidly growing in importance in the applied life sciences and for the advancement of biomedicines.

The Master of Molecular Imaging Technology aims to develop international leaders in molecular imaging. Bringing together our expertise and advanced technology, this unique program is taught by experts in the field and supported by the Centre's state-of-the-art facilities, which offers a comprehensive suite of molecular imaging technologies.

Students will have the opportunity to undertake coursework as well as a molecular imaging research project.

Expertise and facilities are available for the development and imaging of radioactive tracers for Positron Emission Tomography (PET); and non-radioactive tracers for computed tomography (CT), optical and Magnetic Resonance Imaging (MRI) applications.

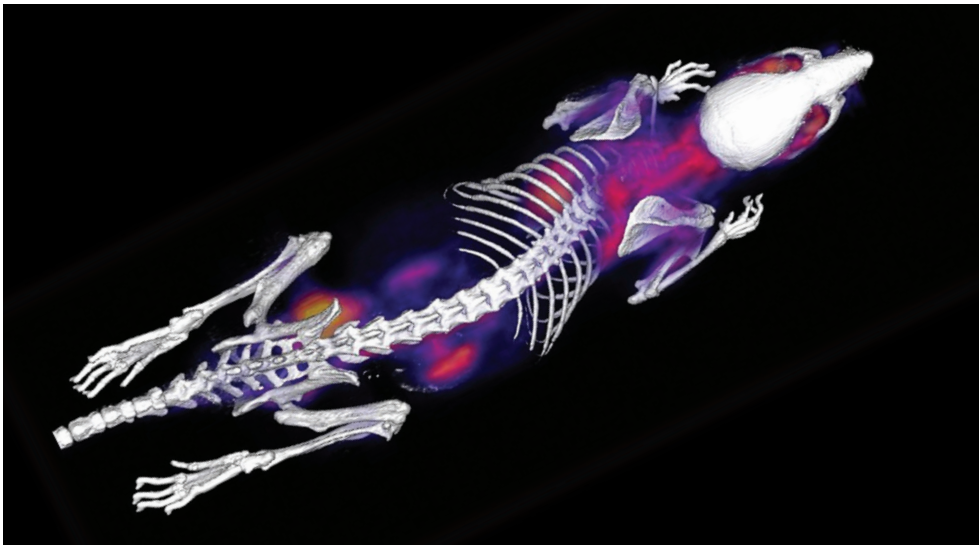
Who is the program designed for?

The Master of Molecular Imaging Technology is designed for nuclear medicine technologists, radiographers, chemists, biologists, physicists, engineers and computer scientists. This program will give you an in-depth knowledge of new biomedical imaging approaches to help you become a leader in this evolving field.

Program of study

Core courses	
MRES7100	Fundamentals of MRI
MOLI7101	Molecular Targets and Imaging Probes
MOLI7102	Clinical and Molecular Imaging
MOLI7109	Radiotracer Based Molecular Imaging
Elective courses	
MOLI7103	Advanced molecular imaging
MOLI7104	Cell targeting and tracking in vivo
MOLI7105	Minor research project
MOLI7107	MR-PET hardware and software integration
MOLI7108	Clinical magnetic resonance imaging
MOLI7110	Pathological correlates of molecular imaging
MRES7009	MRI spectroscopy and applications
STAT7120	Analysis of scientific data
Research courses	
MOLI7106	Research project
MOLI7200	Advanced research project

PET-CT image of a mouse after intravenous injection of F18 radiolabelled fluorodeoxyglucose (F18-FDG)



Graduate Certificate in

Magnetic Resonance and Positron Emission Tomography (MR-PET)

Program code 5654
CRICOS code 092060D

Program duration

8 units (half-year full-time or part-time equivalent)

Entry requirements

Bachelor degree in applied science; nuclear medicine technology; medical imaging; chemistry; pharmacy; physics; computer science; or electrical and biomedical engineering; or an approved discipline.

Applications on the basis of post-secondary study and two years work experience in a related field will be individually assessed.

English proficiency

Non-native English speakers must meet UQ's English Language Proficiency. View the policy at future-students.uq.edu.au/english-requirements

Location

The University of Queensland, St Lucia campus or via remote online study.

Delivery mode

Internal or External, requires one week on campus attendance.

Teaching method

Our programs are delivered online and on campus. You need a computer with reliable internet and word processing software such as Microsoft Word or Apple Pages. Candidates are required to have access to a MRI scanner at their workplace or at the Centre by arrangement. Course materials are delivered through Blackboard, UQ's electronic learning management platform.

Apply for credit

Graduates of the Master of Molecular Imaging and Magnetic Resonance Technology programs may be eligible for up to 4 units of credit towards the Graduate Certificate in MR-PET.

Contact cai@enquire.uq.edu.au for more information.

When to apply

With two intakes per year, your study options are endless.

See UQ's Future Students website for admission and enrolment dates for both domestic and international candidates: future-students.uq.edu.au/apply

Why study MR and PET at CAI?

The blend of high-resolution Magnetic Resonance Imaging (MRI) and the physiological data of Positron Emission Tomography (PET) is making an impression in medical diagnosis. The operation of this new hybrid system requires an understanding of both the MRI and PET standalone technologies. With the rapid development of medical imaging, hybrid medical imaging systems are becoming more commonplace with practitioners needing to upskill in this emerging specialisation. We have answered this gap in industry with the Graduate Certificate in Magnetic Resoncance and Positron Emission Tomography (MR-PET).

The four core courses of the Graduate Certificate equip you with specialist knowledge surrounding MR-PET. Classes are taught by lecturers from multidisciplinary backgrounds including MR radiography, nuclear medicine, physics, and engineering.

The program includes an on-campus workshop, giving students the opportunity for hands on practical component to operate MRI scanners and practice scanning on human volunteers.

Who is the program designed for?

The Graduate Certificate in MR-PET is designed for professionals such as nuclear medicine technologists and diagnostic radiographers who require a more in-depth knowledge of the theoretical fundamentals and operational considerations of a hybrid MRI scanner and PET scanner.

Program of study

MRES7100 Magnetic Resonance Imaging: Fundamentals

Explore the principles and methods that underpin Magnetic Resonance Imaging. Topics include physical principles of nuclear magnetic resonance, underlying mechanisms of relaxation in MR and descriptions of the way in which pulse sequences are able to exploit relaxation to produce contrast.

MOLI7107 MR-PET Hardware and Software Integration

MR-PET instruments used for clinical and pre-clinical applications. Consideration will be given to the physical structure of magnet, gradients and RF coils, and PET ring construction and integration into a combined MR-PET system. Calibration and general workflow considerations will be introduced to enable simultaneous acquisition of MRI and PET images.

MOLI7108 Clinical Magnetic Resonance Imaging

Patient screening, preparation and common clinical MRI protocols used when imaging various parts of the human body. Compulsory one week on-campus component in Brisbane.

MRES7003 MR Safety and Monitoring

Principal hazards of MRI environment and its effects on the human body and equipment. Physiological monitoring strategies examined from the origin of signals to integration with the imaging system.

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CRICOS Provider Number 00025B

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