Welcome to Medical Imaging at the University of Auckland and congratulations on embarking on your postgraduate studies. The University of Auckland is the highest ranked University in New Zealand. We are proud to have our first batch of Medical Imaging graduates, including PGCertHSc Mammography in 2013 and PGDipHSc MRI and PGDipHSc Ultrasound students in 2014. While we are a newly established discipline within the Faculty of Medical and Health Sciences, our programmes offer the following distinctive features:

- We offer the only postgraduate Medical Imaging registrable programmes in New Zealand that are accredited by the Medical Radiation Technologists Board of New Zealand;
- We promote a safe and conducive learning environment to encourage students to push the knowledge frontier;
- We adopt a holistic approach to student learning, encouraging reflective and critical thinking which are key attributes of effective healthcare practitioners;
- Our postgraduate programmes further enhance clinical practice and challenge you to better your patient care delivery.

The Medical Imaging team will continue to strive to provide our students with a learning experience that is not only enjoyable, but also one that challenges you to excel.

You will find in this Programme handbook all the information you need to get started.

Best wishes.

Associate Professor Jenny Sim PhD
Programme Director Medical Imaging

“Education is not the filling of a pail, but the lighting of a fire.”
– William Butler Yeats

“Change is the end result of all true learning.”
– Leo Buscaglia

Although every reasonable effort is made to ensure accuracy at time of print (December 2016), the information in this document is provided as a general guide only for students and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the current Calendar of the University of Auckland, to ensure that they are aware of and comply with all regulations, requirements and policies.

We advise that the University of Auckland is not involved in the employment of completing health professional students and can make no guarantee of post-qualification registration or employment in New Zealand or any other country.
What is Medical Imaging?

Medical Imaging Technologists (MITs) can work in a variety of roles within Medical Imaging including general x-ray, CT scanning, mammography, ultrasound, MRI and nuclear medicine.

Mammography

Mammography is a patient focussed profession. The role involves working closely with patients, doctors and multidisciplinary teams. Technologists are required to prepare patients and equipment for examinations, perform and recognise high quality diagnostic imaging, perform quality assurance testing on equipment and ensure the holistic care of the patient. The role of the Medical Imaging Technologist (MIT) is ever changing with the introduction of more complex technologies, increased demand on clinical imaging and educational opportunities.

Medical Imaging postgraduate study is available for those working professionally in Medical Imaging departments, and also for other interested professionals who wish to broaden their knowledge base of Medical Imaging. Further to that, postgraduate qualifications are required for professional registration purposes in the imaging technology sub-specialties of Magnetic Resonance Imaging (MRI), Ultrasound and Nuclear Medicine.

Medical Imaging

Medical Imaging is the practice of obtaining diagnostic images and providing imaging guidance in interventional procedures, using a range of technologies. It is performed by Medical Imaging Technologists, historically known as radiographers. These health practitioners are required to combine scientific skills and knowledge with patient care into their working practice. In New Zealand, these practitioners are required to be registered with the Medical Radiation Technologists Board (MRTB) to be eligible to practise clinically and hold an Annual Practising Certificate (APC).

New Zealand Graduates

The New Zealand qualification required for registration as a Medical Imaging Technologist is a Bachelor of Health Science (Medical Imaging), Bachelor of Applied Science (Medical Imaging) or Bachelor of Medical Imaging. This undergraduate qualification is not available at the University of Auckland.

Mammography

Mammographers are qualified health professionals specialising in the diagnostic and/or Breastscreen Aotearoa (BSA) breast imaging services. This career pathway is also suitable for radiotherapists wishing to enter diagnostic imaging and work with BSA. Mammography is a challenging but rewarding clinical environment to participate in and is highly patient-focused. Mammographers require a sound understanding of the technical aspects of imaging breast anatomy and pathology, whilst addressing the emotional requirements of client care and communication.

Magnetic Resonance Imaging (MRI)

Magnetic Resonance Imaging (MRI) Technologists use very high-field strength magnets to obtain diagnostic images of the human body. These images provide important information to assist doctors in diagnosing a wide range of neurological, musculoskeletal and body pathologies. MRI Technologists must first obtain an undergraduate degree in Medical Imaging before completing specialist postgraduate study and training in MRI. They should have an interest in physics as well as anatomy and pathology to ensure that images of optimal quality are obtained, in addition to good people skills as they have responsibility for the safety and care of patients in the MRI environment. These technologists work primarily in mid-large sized hospitals and private radiology departments.

Nuclear Medicine

A career in Nuclear Medicine is people orientated and provides exposure to health sciences and computer technology. Compared to other medical disciplines, Nuclear Medicine is unique in that it uses radioactive tracers to provide both structural and physiological information on almost any organ of the body to assist with the diagnosis and treatment of disease.

Ultrasound

Sonographers are health professionals who utilise their knowledge of human anatomy, pathophysiology, technology and physics in order to obtain diagnostic images, which assist in the diagnosis of disease and fetal abnormalities. Sonographers are employed in hospitals, universities and private clinics. They may also run their own business. Sonography is a highly sought after career, with New Zealand trained sonographers in demand around the world. A career in ultrasound requires highly developed people skills, and a commitment to lifelong learning.

Medical Imaging at the University of Auckland

About the Department of Anatomy and Medical Imaging

The Department of Anatomy and Medical Imaging makes a major contribution to general courses in biomedical science teaching and offers specialist courses in the anatomical and imaging sciences. It comprises the disciplines of Anatomy and Medical Imaging and forms part of the School of Medical Sciences of the Faculty of Medical and Health Sciences.

The department also delivers the only postgraduate programme in New Zealand for the Medical Imaging profession.

The research activities of staff are similarly wide ranging and multidisciplinary, extending from the molecular level through biological structure to studies on the whole body. The department is widely recognised for several outstanding developments, including the initiation of a state-of-the-art Biomedical Imaging Research Unit, an internationally recognised human brain bank for neuroscience research, a fully integrated facility that underpins anatomy, radiology and pathology teaching on the human body. Auckland Medical Research Foundation (AMRF), Medical Sciences Learning Centre - Whakaaro Pai and a broad range of high quality histology techniques Histology Laboratory.

Address

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Faculty of Medical and Health Sciences
University of Auckland
85 Park Road, Grafton
Auckland 1140, New Zealand

Medical Imaging Website

www.fmhs.auckland.ac.nz/medical-imaging

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Postgraduate Certificate in Health Sciences (Medical Imaging)

Our postgraduate programmes

Postgraduate Certificate in Health Sciences (Medical Imaging)

All of these programmes are predominantly comprised of courses selected from Medical Imaging (MEDIMAGE) and/or Clinical Imaging (CLINIMAG). These courses present the state of the art in each discipline, are research-led and supported by the cutting-edge clinical and educational facilities offered in the faculty. All MEDIMAGE and CLINIMAG courses are worth 1.5 points, and are available only by distance learning (with the exception of the on-campus ultrasound course CLINIMAG 709). All of these courses are fully online and delivered via the University’s learning management system ‘CANVAS’. They incorporate a range of learning approaches including videos, webpages, and digital resources from the Philson library.

A Medical Imaging Orientation workshop is offered at the beginning of each semester for those students new to the university and an annual Medical Imaging Symposium is held in Semester 1. These are on-campus events and while not compulsory, attendance is highly recommended.

A major feature of postgraduate study is a requirement for self-directed learning. This is achieved through assignments, reading seminar presentations and online discussions. Study at postgraduate level means making a commitment to both professional and personal development as well as to new and challenging academic work. Postgraduate study is about investigating, analysing, critically evaluating, reflecting and responding to the challenges posed by practice and the academic environment.

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Postgraduate Diploma in Health Sciences (Mammography)

Postgraduate Diploma in Health Sciences (Medical Imaging)

Postgraduate Diploma in Health Sciences (Mammography)

Postgraduate Diploma in Health Sciences (Ultrasound)

PGCertHSc (Medical Imaging) programme

The Postgraduate Certificate in Health Sciences (PGCertHSc) in Medical Imaging is designed for Medical Imaging Technologists (MITs) seeking to extend their understanding of Medical Imaging and contribute to the improvement of clinical health services by implementing their knowledge and expertise within Medical Imaging services. Upon completion of the PGCertHSc, in Medical Imaging students can progress to the PGCertHSc in Medical Imaging

Students may choose to follow a CT or Image Evaluation pathway as seen in the tables to the right, or to develop a more personalised pathway to suit their individual needs. Please email the Medical Imaging team to confirm your proposed pathway meets the programme requirements.

Graduate profile

Graduates of the Postgraduate Certificate in Health Sciences in Medical Imaging will have the core attributes and skills of all certificate graduates and, in addition, will be able to:

- Apply a scientific body of knowledge relevant to a chosen medical imaging pathway
- Critically evaluate their own practice using an evidence-based approach
- Solve problems through systematic enquiry and critical reflection
- Adapt to a rapidly changing health care environment
- Integrate personal capabilities with professional practice

For more information:

www.auckland.ac.nz/medical-imaging
Postgraduate Certificate in Health Sciences (Mammography)

PGCertHSc (Mammography) programme

The Postgraduate Certificate in Health Sciences (Mammography) provides a combination of academic and clinical elements ensuring graduates from this programme meet the mammography competencies as defined by the New Zealand Medical Radiation Technologists Board (MRTB).

Graduates of the Postgraduate Certificate in Health Sciences in Mammography will be able to provide high level expertise in breast imaging and may contribute to national breast screening programmes. They will also be able to progress to further study in Medical Imaging.

For admission to this programme, the student must satisfy the Programme Director that they are employed in an appropriate clinical training position. It is the responsibility of the student to obtain this position. Appropriate supervision of the student must also be provided by a qualified and experienced member of staff who is registered in the Medical Imaging Scope of Practice and holds a current Annual Practising Certificate (APC).

Workplace clinical requirements

In order to develop the necessary technical, clinical and diagnostic skills, students must be exposed to a large number and wide range of mammographic examinations. Completion of the training period will demand that the student has experienced a minimum of 300 clinical hours. Additionally, the minimum total number of mammographic examinations to be recorded is 300, of which no fewer than 200 must be performed without assistance.

Assessment of clinical competency will also occur in the student’s workplace throughout the duration of their enrolment within this programme until the completion of CLINIMAG 708 (Mammographic Clinical Practice). Students will not be able to compensate an inadequate clinical assessment with excellent academic work.

Graduate profile

PGCertHSc in Mammography

Graduates of the Postgraduate Certificate in Health Sciences in Mammography will have the core attributes and skills of all certificate graduates and, in addition, will be able to:

- Apply a scientific body of knowledge in the field of mammography,
- Critically evaluate their own practice using an evidence-based approach,
- Solve problems through systematic enquiry and critical reflection,
- Adapt to a rapidly changing health care environment,
- Integrate personal capabilities with professional practice.

Schedule of courses

For more information:

www.fmhs.auckland.ac.nz/mammography

Annette Kelly

Postgraduate Certificate in Health Sciences (Mammography) student Annette Kelly works for St Marks Breast Centre in Auckland as a mammographer.

"I became a mammographer because I was seeking a change or challenge but was not sure which field to pursue. A friend got breast cancer a few months later and through this, I developed an interest in mammography.

"I chose to study at the University of Auckland because it is well known, highly regarded and has a great Medical Imaging team. I hadn’t studied since I graduated in 1996 so I have had lots of questions and the lecturers are always happy to help.

"The programme coursework and assessments are very relevant to my clinical practice and the topics covered are useful in my everyday work. The academic programme has supported my clinical progression by starting with the basic equipment, physics and patient interaction, then continuing on to learn about improving positioning of difficult patients and types of cancers and other pathologies of the breast.

"This programme ensures I can work anywhere that provides a mammography service, but more than that, it has given me a deeper understanding of what I do and why. It has been a very rewarding journey so far!"
Postgraduate Diploma in Health Sciences (Medical Imaging)

PGDipHSc (Medical Imaging)

The Postgraduate Diploma in Health Sciences (PGDipHSc) in Medical Imaging is designed for Medical Imaging Technologists (MITs) seeking to extend their understanding of Medical Imaging and contribute to the improvement of clinical health services by implementing their knowledge and expertise within Medical Imaging services.

Graduates of the PGDip in Medical Imaging will be prepared to contribute to the improvement of clinical health services offered to the New Zealand public by implementing their knowledge and expertise within Medical Imaging. Graduates will also be able to advance to Masters level study and contribute to the development of Medical Imaging services through research.

Graduate profile

Graduates of the Postgraduate Diploma in Health Sciences in Medical Imaging will have the core attributes and skills of all diploma graduates and graduates of the Postgraduate Certificate in Health Sciences in Medical Imaging. In addition, they will be able to:

- Contribute to the development of advanced practice in medical imaging,
- Develop ideas and lead strategies to improve medical imaging practice,
- Contribute to the development of advanced practice in Medical Imaging. In addition, they will have the core attributes and skills of all diploma graduates and, in addition, will be able to:
- Solve problems through systematic enquiry and critical reflection
- Critically evaluate their own practice using an evidence-based approach
- Contribute to the development of advanced practice in Nuclear Medicine
- Apply a scientific body of knowledge in the field of Nuclear Medicine
- Contribute to the development of advanced practice in Nuclear Medicine
- Critically evaluate their own practice using an evidence-based approach
- Solve problems through systematic enquiry and critical reflection

PGDipHSc (Medical Imaging) – Nuclear Medicine pathway

Graduates of the PGDip in Medical Imaging in Nuclear Medicine pathway will be prepared to contribute to the improvement of clinical health services offered to the New Zealand public by implementing their knowledge and expertise within Medical Imaging, and specifically within Nuclear Medicine. Graduates will also be able to advance to Masters level study and contribute to the development of Medical Imaging services through research.

For admission to this programme, the student must satisfy the Programme Director that they are employed in an appropriate clinical training position. It is the responsibility of the student to obtain this position. Appropriate supervision of the student must also be provided by a qualified and experienced member of staff who is registered in the Nuclear Medicine Scope of Practice and holds a current Annual Practising Certificate (APC).'

Workplace clinical requirements

In order to develop the necessary technical, clinical and diagnostic skills, trainees must be exposed to a large number and wide range of Nuclear Medicine examinations. By completion of the training period the minimum total number of Nuclear Medicine examinations to be recorded is 1000, of which no fewer than 500 must be performed without assistance. Within the Nuclear Medicine pathway, there is also a requirement for familiarisation and competency of processes and procedures additional to imaging. These are predominantly laboratory based and include a significant focus on quality assurance and radiation safety.

Assessment of clinical competency will also occur in the student’s workplace throughout the duration of their enrolment within this programme. Students will not be able to compensate an inadequate workplace clinical requirement with excellent academic work.

A final clinical competency assessment, Structured Observation and Assessment of Practice (SOAP), must be performed at the student’s workplace throughout the duration of their enrolment within this programme. Successful completion of this qualification will enable registration with the MRTB in the Nuclear Medicine Scope of Practice.

For more information:

www.auckland.ac.nz/medical-imaging

Postgraduate Diploma in Health Sciences (Medical Imaging – Nuclear Medicine pathway)

Course Code Course Name S1 S2
MEDIMAGE 701 Imaging Anatomy and Pathology ▪ ▪
MEDIMAGE 709 Professional issues in Medical Imaging ▪ ▪
75 points from MEDIMAGE 707-712, CLINIMAG 704-718 Dependent on student choice
15 points from Approved Research Methods course OR Elective course Dependent on student choice

For more information:

www.fmhs.auckland.ac.nz/nuclear-medicine

Schedule of courses

PGDipHSc (Medical Imaging)

Graduates of the Nuclear Medicine pathway in the Postgraduate Diploma in Health Sciences (Medical Imaging) will have the core attributes and skills of all diploma graduates and, in addition, will be able to:

- Contribute to the development of advanced practice in Nuclear Medicine
- Critically evaluate their own practice using an evidence-based approach
- Solve problems through systematic enquiry and critical reflection
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Graduate Profile

PGDipHSc in Medical Imaging (Nuclear Medicine pathway)

Graduates of the Nuclear Medicine pathway in the Postgraduate Diploma in Health Sciences (Medical Imaging) will have the core attributes and skills of all diploma graduates and, in addition, will be able to:

- Contribute to the development of advanced practice in Nuclear Medicine
- Critically evaluate their own practice using an evidence-based approach
- Solve problems through systematic enquiry and critical reflection

Specialisations

Postgraduate Diploma in Health Sciences (Medical Imaging)

Specialisations

Postgraduate Diploma in Health Sciences (Medical Imaging – Nuclear Medicine pathway)
Postgraduate Diploma in Health Science (Magnetic Resonance Imaging)

PGDipHSc (MRI) programme

The Postgraduate Diploma in Health Sciences (MRI) provides a combination of academic and clinical elements ensuring graduates from this programme will be eligible for registration with the regulatory body, the New Zealand Medical Radiation Technologists Board (MRTB). Graduates of the PGDipHSc in Magnetic Resonance Imaging will be prepared to contribute to the improvement of clinical health services offered to the New Zealand public by implementing their knowledge and expertise within Medical Imaging, and specifically within MRI. Graduates will also be able to advance to Masters level study and contribute to the development of Medical imaging services through research.

For admission to this programme, the student must satisfy the Programme Director that they are employed in an appropriate clinical training position. It is the responsibility of the student to obtain this position. Appropriate supervision of the student must also be provided by a qualified and experienced member of staff who is registered in the Magnetic Resonance Imaging Scope of Practice and holds a current Annual Practising Certificate (APC).

Workplace clinical requirements

In order to develop the necessary technical, clinical and diagnostic skills, trainees must be exposed to a large number and wide range of MRI examinations. By completion of the training period the requirement is that the student has experienced a minimum of 3000 clinical hours. Additionally, the minimum total number of MRI examinations to be recorded is 1100, of which no fewer than 500 must be performed without assistance.

Assessment of clinical competency will also occur in the student’s workplace throughout the duration of their enrolment within this programme. Students will not be able to compensate an inadequate clinical assessment with excellent academic work.

A final clinical competency assessment, Structured Observation and Assessment of Practice (SOAP), must be performed at the student’s workplace and passed. Successful completion of this qualification will enable registration with the MRTB in the Magnetic Resonance Imaging Scope of Practice.

Graduate profile

Graduates of the Postgraduate Diploma in Health Sciences in Magnetic Resonance Imaging will have the core attributes and skills of all diploma graduates and, in addition, will be able to:

- Apply a scientific body of knowledge in the field of medical resonance imaging
- Contribute to the development of advanced practice in MRI
- Critically evaluate their own practice using an evidence-based approach
- Solve problems through systematic enquiry and critical reflection
- Adapt to a rapidly changing health care environment
- Integrate personal capabilities with professional practice
- Develop ideas and lead strategies to improve medical imaging practice
- Accept professional responsibilities related to leadership, supervision and management

Specialisations

Postgraduate Diploma in Health Sciences in Magnetic Resonance Imaging (MRI)

Schedule of courses

Postgraduate Diploma in Health Sciences in Magnetic Resonance Imaging (MRI)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>S1</th>
<th>S2</th>
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<tbody>
<tr>
<td>MEDIMAGE 701</td>
<td>Imaging Anatomy and Pathology</td>
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<td>*</td>
</tr>
<tr>
<td>MEDIMAGE 702</td>
<td>Professional Issues in Medical Imaging</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>MEDIMAGE 714</td>
<td>Fundamentals of Clinical MRI*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>MEDIMAGE 715</td>
<td>MRI Technology</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>CLINIMAG 710</td>
<td>MRI Clinical Applications</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>CLINIMAG 711</td>
<td>MRI Specialised Clinical Applications</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>CLINIMAG 712</td>
<td>MRI Clinical Practice</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Elective course (recommend MEDIMAGE 711: MRI Safety)</td>
<td>Dependent on student choice</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

*As this course is a pre-requisite for all other MRI-specific courses, it is expected that students complete this in the first semester of their programme of study.

For more information

www.fmhs.auckland.ac.nz/MRI

Sarah Kerr

Postgraduate Diploma in Health Sciences (MRI) student Sarah Kerr works as a trainee MRI technologist for Auckland Radiology Group.

“I had always had the aspiration to become an MRI technologist right from when I started my radiography degree. MRI is a modality where the technology is always advancing and therefore continually providing opportunities to develop new skills and further one’s knowledge. There is a great deal of technologist involvement in ensuring high image quality as technical parameters can be manipulated for optimal scanning.”

“I chose to study at the University of Auckland because of its renowned high standards of education. The postgraduate MRI programme establishes a sound foundation in becoming a knowledgeable MRI technologist. With the theory complementing my clinical practice, I really noticed my progression in technical ability as I could confidently optimise a scan without compromising the patient’s comfort or image quality. MRI imaging also has many safety concerns regarding any person entering the environment and this can be very daunting as a trainee. This programme has given me the knowledge and competence to be able to make a decision on whether or not a patient is safe to be scanned.”

“The theoretical aspect of the programme was relevant to clinical MRI practice which I found really helpful as it deepens understanding and translates directly to being able to obtain high quality MR images. What seemed a foreign language at first, all of a sudden made sense and therefore contributed to a better applied understanding in practice.”

“The annual Medical Imaging Symposium was a really interesting couple of days where there were workshops and lectures relating to each modality. As well as being a valuable learning opportunity, it allowed the students to meet fellow classmates as well as our lecturers.”
Postgraduate Diploma in Health Science (Ultrasound)

PGDipHSc (Ultrasound) programme

The Postgraduate Diploma in Health Sciences (Ultrasound) provides a combination of academic and clinical elements ensuring graduates from this programme will be eligible for registration with the regulatory body, the New Zealand Medical Radiation Technologists Board (MRTB). Graduates of the PGDipHSc in Ultrasound will be prepared to contribute to the improvement of clinical health services offered to the New Zealand public by implementing their knowledge and expertise within Medical Imaging, and specifically within ultrasound. Graduates will also be able to advance to Masters level study and contribute to the development of Medical Imaging services through research.

For admission to this programme, the student must satisfy the Programme Director that they are employed in an appropriate clinical training position. It is the responsibility of the student to obtain this position. Appropriate supervision of the student must also be provided by a qualified and experienced member of staff who is registered in the Ultrasound Scope of Practice and holds a current Annual Practising Certificate (APC).

The ultrasound programme is designed to be completed part-time and by distance learning, with the exception of CLINIMAG 709 (Principles of Clinical Ultrasound) which requires on-campus attendance.

For those interested in pursuing a career in ultrasound and who are NOT Medical Imaging Technologists, please refer to the University of Auckland website for more information: www.fmhs.auckland.ac.nz/ultrasound

Workplace clinical requirements

In order to develop the necessary technical, clinical and diagnostic skills, trainees must be exposed to a large number and wide range of Ultrasound examinations. By completion of the training period the requirement is that the student has experienced a minimum of 5000 clinical hours.

Additionally, the minimum total number of Ultrasound examinations to be recorded is 2000, of which no fewer than 1000 must be performed without assistance.

Assessment of clinical competency will also occur in the student’s workplace throughout the duration of their enrolment within this programme. Students will not be able to compensate this inadequate clinical assessment with excellent academic work.

A final clinical competency assessment, Structured Observation and Assessment of Practice (SOAP), must be performed at the student’s workplace and passed. Successful completion of this qualification will enable registration with the MRTB in the Ultrasound Scope of Practice.

Graduate Profile

PGDipHSc in Ultrasound

Graduates of the Postgraduate Diploma in Health Sciences in Ultrasound will have the core attributes and skills of all diploma graduates and, in addition, will be able to:

• Apply a scientific body of knowledge in the field of ultrasound,
• Contribute to the development of advanced practice in ultrasound,
• Critically evaluate their own practice using an evidence-based approach,
• Solve problems through systematic enquiry and critical reflection,
• Adapt to a rapidly changing health care environment,
• Integrate personal capabilities with professional practice,
• Develop ideas and lead strategies to improve Medical Imaging practice,
• Accept professional responsibilities related to leadership, supervision and management.

Schedule of courses

Postgraduate Diploma in Health Sciences in Ultrasound

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>●</td>
<td>●</td>
</tr>
<tr>
<td>MEDIMAGE 716</td>
<td>Fundamentals of Clinical Ultrasound® OR</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CLINIMAG 709</td>
<td>Principles of Clinical Ultrasound®</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>MEDIMAGE 717</td>
<td>Ultrasound Imaging Technology</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>CLINIMAG 713</td>
<td>Ultrasound Clinical Applications in Obstetrics and Gynaecology</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>CLINIMAG 714</td>
<td>Ultrasound Clinical Applications</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>CLINIMAG 715</td>
<td>Ultrasound Clinical Practice</td>
<td>●</td>
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</tr>
<tr>
<td>Elective course</td>
<td>Elective course</td>
<td>Dependent on student choice</td>
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</tbody>
</table>

*As either of these courses is a pre-requisite for all of the other ultrasound-specific courses, it is expected that students complete this in the first semester of their programme of study.

For more information

www.fmhs.auckland.ac.nz/ultrasound

Specialisations

Abby Crowe

Postgraduate Diploma in Health Sciences (Ultrasound) student Abby Crowe works as a trainee sonographer for the Waitemata District Health Board.

“Becoming a sonographer has provided the opportunity to further my education, use specialised technology and become an integral part of the diagnostic pathway. Sonography is a challenging and rewarding career. The profession is well respected and the sonographer’s opinion can often determine the clinical outcome for the patient. The job greatly varies, with no one day being the same. There are many subspecialties within ultrasound therefore the future offers a chance to continue learning and developing. I see this job as diverse, highly respected and exciting.

I chose to study at the University of Auckland because it has a good reputation. It is close to home, convenient and has the support of the District Health Boards. I began the programme on the university’s three-month intensive on-campus course that supported my clinical and theoretical development at the beginning of my career. From both this intensive course and the ongoing online courses you develop a close-knit circle of friends that support each other throughout. In addition, the lecturers are readily available and supportive.

The programme is well structured with each semester focusing on different elements of the job. The course content, assignments and tests are all based around real life clinical scenarios. I found this to be a great way of learning as it would highlight any gaps in my knowledge or assure me that my clinical skills were sound.

Potentially in the future, once I have all the necessary skills, I would like to become a clinical tutor. The programme is very demanding and having my clinical tutors to support and guide me through has been of great help so I would like to pass this on to future students.”
Course descriptions

Offering of courses in each semester is dependent on sufficient student enrolment numbers and are therefore subject to change by the School of Medical Sciences.

Enrolment information explained

Prerequisite

A course that you must pass before you can start to study in this course.

Restriction

A course which is restricted against another course because the learning objectives, content, and/or assessment are so similar to the other course that you cannot gain credit for both courses towards a certificate, diploma, or degree.

Corequisite

A course that should be taken in the same semester as another unless it has previously been satisfactorily completed.

Department consent required

Before you can enrol in this course you must obtain permission to do so from the department. Contact your Faculty student centre if you need help or advice. Refer to page 24 for further details.

MEDIMAGE 701

Imaging Anatomy and Pathology

Students will develop an integrated understanding of anatomy and pathology as it applies to medical imaging in the clinical context. The course introduces the principles of medical science at whole body, organ, tissue, cellular and subcellular levels and includes the fundamentals of anatomy, physiology and pathophysiology of the major systems of the human body in relation to specific regions and pathologies.

Prerequisite course: MEDIMAGE 702

MEDIMAGE 702

Professional Issues in Medical Imaging

Students will investigate the concept of professional practice leading to an exploration of current professional issues relevant to medical imaging including role development and advanced practice. The course will provide students with the knowledge to interact with individuals from a variety of backgrounds both ethically and with respect for their beliefs and values. The course addresses medical legal issues, decision-making and effective communication within the clinical setting.

MEDIMAGE 707

Mammographic Technology

Provides students with an in-depth understanding of mammographic technology and its application. The course addresses the scientific principles of the modality including image formation, technical parameters, radiation safety specific to mammography, image quality, artefacts, and quality assurance. Equipment developments and new and evolving techniques will be examined.

MEDIMAGE 708

Nuclear Medicine Technology

Provides students with an in-depth understanding of Nuclear Medicine technology and its application. The course addresses scientific principles of the modality relating to standard clinical practices including image quality and quality assurance, Single Photon Emission Computed Tomography (SPECT), Positron Emission Tomography (PET) and PET/CT.

Prerequisite course: MEDIMAGE 720

MEDIMAGE 710

CT Imaging Technology

Provides students with an in-depth understanding of CT technology and its application. The course addresses the scientific principles of the modality including image formation and reconstruction, technical parameters, radiation safety and dose reduction, image quality, artefacts, quality assurance and contrast agents. Equipment developments and new and evolving techniques will be examined.

MEDIMAGE 711

Musculoskeletal Trauma Image Evaluation

Provides students with the knowledge to evaluate radiographs of common musculoskeletal trauma in the clinical setting. Using a systematic method of image interrogation and a critical approach, students will develop the ability to provide a preliminary clinical image evaluation of common musculoskeletal trauma radiographs.

MEDIMAGE 712

Musculoskeletal Pathology Image Evaluation

Provides students with the knowledge to evaluate radiographs of common musculoskeletal pathologies in the clinical setting. Using a systematic method of image interrogation and a critical approach, students will develop the ability to provide a preliminary clinical image evaluation of common musculoskeletal pathology radiographs.

MEDIMAGE 714

Fundamentals of Clinical MRI

Provides a fundamental understanding of MRI technology and its applications and addresses scientific principles of the modality including resonance and relaxation, image contrast, spatial encoding and digital image formation. Students will examine components of the clinical environment including MRI equipment, contrast agents, bio-effects and safety. In addition, students will analyse standard imaging protocols of the lumbar spine, knee and brain and normal and abnormal MR imaging appearances of these areas.

MEDIMAGE 715

MRI Technology

Provides an in-depth understanding of MRI technology and its applications, and addresses scientific principles of the modality relating to standard clinical practice including pulse sequences, image quality, quality assurance, technical parameters and trade-offs, image optimisation, artefacts, parallel imaging, scanning at 3T, diffusion and MR angiography.

Prerequisite: MEDIMAGE 714

MEDIMAGE 716

Fundamentals of Clinical Ultrasound

Provides a fundamental understanding of ultrasound technology and applications. Students will examine components of the clinical environment including transducer technology, quality assurance, bio-effects and safety. In addition, students will analyse standard imaging techniques and normal and abnormal imaging appearances of the abdomen, pelvis and lower limbs.

MEDIMAGE 717

Ultrasound Imaging Technology

Provides students with the advanced scientific principles of ultrasound and their application. The course addresses Doppler principles, artefacts and instrumentation, electronic array technology, contrast agents, three-dimensional and 4-D scanning, equipment developments and new and evolving techniques.

MEDIMAGE 718

Acute Chest Image Evaluation

Provides students with the knowledge to evaluate acute chest radiographs in the clinical setting. Using a systematic method of image interrogation and a critical approach, students will develop the ability to provide a preliminary clinical image evaluation of common acute chest radiographs.

MEDIMAGE 719

Paediatric Image Evaluation

Provides students with the knowledge to evaluate radiographs of common paediatric trauma and pathologies in the clinical setting. Using a systematic method of image interrogation and a critical approach, students will develop the ability to provide a preliminary clinical image evaluation of common paediatric radiographs.

MEDIMAGE 720

Fundamentals of Clinical Nuclear Medicine

Provides a fundamental understanding of Nuclear Medicine technology and applications and addresses scientific principles of the modality including radioactivity, radiation detection and decay, dosimetry and radiopharmacy. Students will examine components of the clinical environment including equipment, laboratory procedures, bio-effects and radiation safety. In addition, students will analyse standard imaging protocols, normal and abnormal biodistribution and imaging appearances of the skeletal system.

MEDIMAGE 721

MRI Safety

Extends students’ understanding of the underlying physical principles related to a range of MRI safety issues. The course will provide students with the opportunity to explore these safety issues in detail and to apply this knowledge in critically evaluating current policies and practices. New and emerging safety topics will also be examined.

Prerequisite: MEDIMAGE 714 (or registered MRI technologist)

CLINIMAGE 705

Nuclear Medicine Clinical Applications

Addresses normal and abnormal radionuclide biodistribution appearances, protocol selection and development, and clinical applications associated with the endocrine, respiratory, gastrointestinal, haematological, gynaecological and central nervous systems.

Prerequisite: MEDIMAGE 710

CLINIMAGE 706

Nuclear Medicine Specialised Clinical Applications

Addresses normal and abnormal radionuclide biodistribution appearances, and protocol selection and development, associated with cardiovascular, lymphatic and oncological applications in Nuclear Medicine. Students will also examine non-imaging radionuclide investigations and therapeutic applications associated with current and evolving Nuclear Medicine techniques.

Prerequisites: MEDIMAGE 720

CLINIMAGE 707

CT Clinical Practice

(addresses normal and abnormal computed tomography (CT) imaging appearances, technique evaluation and adaptation, and includes reflection on clinical practice relating to CT. The course will ensure students develop the knowledge, competencies, skills and attitudes needed to demonstrate mastery in academic and professional CT practice.

Prerequisite: MEDIMAGE 710

Restriction: CLINIMAGE 717

CLINIMAGE 708

Mammographic Clinical Practice

Addresses normal and abnormal mammographic imaging appearances, technique evaluation and adaptation, and includes reflection on clinical practice relating to mammography. The course will ensure students develop the knowledge, competencies, skills and attitudes needed to demonstrate mastery in academic and professional mammographic practice.

Prerequisite: MEDIMAGE 707 Mammographic Technology

CLINIMAGE 709

Principles of Clinical Ultrasound

Provides a fundamental understanding of ultrasound technology and applications. Students will examine components of the clinical environment including transducer technology, quality assurance, bio-effects and safety, and apply these to clinical practice. In addition, students will analyse standard imaging techniques, normal and abnormal imaging appearances of the abdomen, pelvis and lower limbs and perform examinations of these areas.

Restriction: MEDIMAGE 716

CLINIMAGE 710

MRI Clinical Applications

Addresses normal and abnormal imaging appearances, protocol selection and development, and applications associated with standard neurological, musculoskeletal and body MRI examinations.

Prerequisite: MEDIMAGE 714

Restrictions: CLINIMAGE 710, CLINIMAGE 717
Students Kevin Hsu, Donna Reeve and Zoe Campton share their posters to learn from each other on the course MEDIMAGE 701: Imaging Anatomy and Pathology

**CLINIMAGE 711**

**MRI Specialised Clinical Applications**

Addresses complex scientific principles of MRI relevant to a range of specialised applications. Students will examine advanced pulse sequences, and specialised procedures including breast MRI, angiography, functional MRI and cardiac MRI. Techniques such as perfusion, spectroscopy, diffusion tensor imaging (DTI) and tractography will be investigated in addition to new and evolving techniques.

**Prerequisite:** MEDIMAGE 714

**Restriction:** CLINIMAG 702

**CLINIMAGE 714**

**Ultrasound Clinical Applications**

Addresses normal and abnormal ultrasound imaging appearances, in addition to adaptation of scanning techniques relating to the abdomen, musculoskeletal system, vascular system, small parts and paediatric imaging.

**Prerequisite:** CLINIMAG 704 or MEDIMAGE 716

**Restriction:** CLINIMAG 702

**CLINIMAGE 715**

**Ultrasound Clinical Practice**

Develops the knowledge, competencies, skills and attitudes needed to demonstrate mastery in both academic and professional capability in ultrasound practice.

**Prerequisite:** 90 points and departmental approval required

**CLINIMAGE 713**

**Ultrasound Clinical Applications in Obstetrics & Gynaecology**

Addresses normal and abnormal ultrasound imaging appearances, in addition to adaptation of scanning techniques relating to gynaecology and obstetrics ultrasound imaging.

**Prerequisite:** CLINIMAG 704 or MEDIMAGE 716

**Restriction:** CLINIMAG 703

**CLINIMAGE 717**

**CT Clinical Applications**

Addresses normal and abnormal Computed Tomography (CT) imaging appearances, protocol selection and modification, and application to clinical practice.

MEDIMAGE 710 is recommended as a prerequisite course, although not required.

**Restriction:** CLINIMAG 707

**Course schedule 2017**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>S1</th>
<th>S2</th>
<th>Course Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDIMAGE 701</td>
<td>Imaging Anatomy and Pathology</td>
<td>✗</td>
<td>✗</td>
<td>Adrienne Young</td>
</tr>
<tr>
<td>MEDIMAGE 702</td>
<td>Professional Issues in Medical Imaging</td>
<td>✗</td>
<td>✗</td>
<td>Jenny Sim</td>
</tr>
<tr>
<td>MEDIMAGE 707</td>
<td>Mammographic Technology</td>
<td>✗</td>
<td></td>
<td>Rhonda-Joy Sweeney</td>
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<tr>
<td>MEDIMAGE 708</td>
<td>Nuclear Medicine Technology</td>
<td>✗</td>
<td></td>
<td>Beau Pontré</td>
</tr>
<tr>
<td>MEDIMAGE 710</td>
<td>CT Imaging Technology</td>
<td>✗</td>
<td></td>
<td>Catherine Lyman</td>
</tr>
<tr>
<td>MEDIMAGE 711</td>
<td>MSK Trauma Image Evaluation</td>
<td>✗</td>
<td></td>
<td>Heather Gunn</td>
</tr>
<tr>
<td>MEDIMAGE 712</td>
<td>MSK Pathology Image Evaluation</td>
<td>✗</td>
<td></td>
<td>Heather Gunn</td>
</tr>
<tr>
<td>MEDIMAGE 713</td>
<td>Special Studies</td>
<td>✗</td>
<td></td>
<td>Jenny Sim</td>
</tr>
<tr>
<td>MEDIMAGE 714</td>
<td>Fundamentals of Clinical MRI</td>
<td>✗</td>
<td></td>
<td>Adrienne Young</td>
</tr>
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<td>MEDIMAGE 715</td>
<td>MRI Technology</td>
<td>✗</td>
<td></td>
<td>Adrienne Young</td>
</tr>
<tr>
<td>MEDIMAGE 716</td>
<td>Fundamentals of Clinical Ultrasound</td>
<td>✗</td>
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<td>Karen Wallis</td>
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<tr>
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<td>Ultrasound Imaging Technology</td>
<td>✗</td>
<td></td>
<td>Beau Pontré</td>
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<td>MEDIMAGE 718</td>
<td>MRI Safety</td>
<td>✗</td>
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<td>Adrienne Young</td>
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<tr>
<td>CLINIMAG 705</td>
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<td>Shelley Park</td>
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<tr>
<td>CLINIMAG 707</td>
<td>CT Clinical Practice</td>
<td>✗</td>
<td></td>
<td>Catherine Lyman</td>
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<tr>
<td>CLINIMAG 708</td>
<td>Mammographic Clinical Practice</td>
<td>✗</td>
<td></td>
<td>Rhonda-Joy Sweeney</td>
</tr>
<tr>
<td>CLINIMAG 709</td>
<td>Principles of Clinical Ultrasound</td>
<td>✗</td>
<td></td>
<td>Karen Wallis</td>
</tr>
<tr>
<td>CLINIMAG 710</td>
<td>MRI Clinical Applications</td>
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<td>Shelley Park</td>
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<tr>
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<td>MRI Specialised Clinical Applications</td>
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<td>MRI Clinical Practice</td>
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<td>Shelley Park</td>
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<tr>
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<td>Sangeeta Kumar</td>
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<td>Sangeeta Kumar</td>
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<td>Ultrasound Clinical Practice</td>
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<td></td>
<td>Karen Wallis</td>
</tr>
<tr>
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<td>CT Clinical Applications</td>
<td>✗</td>
<td></td>
<td>Catherine Lyman</td>
</tr>
</tbody>
</table>

*This course schedule lists all courses that will be offered in 2017 (subject to sufficient student numbers).*
I am passionate about helping others. I have loved the online focus which has enabled me to extend my learning and to be challenged.

Specialising in CT has enabled me to touch lives and make an impact. This academic programme has allowed me to progress clinically into a second-in-charge position, working closely alongside my supervisor whilst putting my knowledge into practice. I am hoping that this qualification will lead me into a full time CT position, helping to train keen, like-minded technologists in CT.
Postgraduate Diploma in Health Sciences

Postgraduate diplomas (PGDipHSc) can be used to give students a postgraduate qualification in an area of interest, or in which they have some professional involvement. The PGDipHSc (MRI), PGDipHSc (Ultrasound) and PGDipHSc (Medical Imaging) programmes offer courses suitable for registered Medical Imaging Technologists who wish to advance their career and/or for professional development. Within the Medical Imaging specialisation, students can choose their own combination of courses to suit their professional needs or follow prescribed pathways in Nuclear Medicine or Image Evaluation.

The PGDipHSc (MRI), PGDipHSc (Ultrasound) and PGDipHSc (Medical Imaging - Nuclear Medicine pathway) programmes provide a route to registration for Magnetic Resonance Technologists, Sonographers and Nuclear Medicine Technologists in New Zealand. These programmes have been accredited by the New Zealand Medical Radiation Technologists Board (MRTB).

Eligibility

To gain admission to the Magnetic Resonance Imaging, Ultrasound or Medical Imaging specialisations a student needs to have completed an undergraduate degree in Medical Imaging or an equivalent qualification, and hold current registration with the New Zealand Medical Radiation Technologists Board or as a Medical Radiation Technologist in their country of domicile. In addition, the student must have adequate access to clinical work to undertake the programme in circumstances approved by the University of Auckland.

Entry to the PGDipHSc (MRI), PGDipHSc (Ultrasound) and PGDipHSc (Medical Imaging - Nuclear Medicine pathway) programmes is restricted to students who have already obtained a relevant clinical training position in a University of Auckland approved Radiology/ Medical Imaging department.

Duration and points value

| Points required: | 120 |
| Time to complete: | Within one year if enrolled full-time, within four years if enrolled part-time |
| Start semester: | One or Two |

This programme has a total enrolment clause of 160 points. This is the maximum number of points you can enrol in (including failed or withdrawn courses) towards this programme. The Postgraduate Diploma may be awarded with Distinction or Merit where a student's overall grade is sufficiently high.

End of study extension

If further time is required to complete the programme of study, an end of study extension may be requested under specific circumstances. Please seek advice from: medicalimaging@auckland.ac.nz regarding the application process for withdrawals, late deletions and suspensions of study.

Regulations

Detailed information on admission criteria, programme structure and content, and the schedule of courses can be found in the Calendar Regulations for the Postgraduate Diploma in Health Sciences. Students who successfully complete a University of Auckland Postgraduate Certificate in Health Sciences (or its equivalent) may go on to complete a Postgraduate Diploma in Health Sciences by completing a further 60 points (usually four courses). Students must apply to credit their certificate courses to this diploma – please request this when applying online.

Note: You need to access ‘Student services online’ (SSO) to make the necessary change of programme to a diploma or masters. Refer to: www.studentservices.auckland.ac.nz/asa

Transfer Credits, Cross-credits and Reassignments

Transfer credits

Transfer credits (credit from another tertiary institution) may be awarded for a maximum of 30 points provided that the enrolment in the post graduate qualification at the University of Auckland is no later than three semesters from the initial enrolment in the course(s) for which credit is to be given. This must be applied for at the time of admission to the postgraduate diploma programme. Transfer credit will not be given for courses from completed qualifications.

Credit from a postgraduate certificate

In the case of a student who has completed a Postgraduate Certificate for which credit is granted to a Postgraduate Diploma, admission to the Postgraduate Diploma must take place within two years of completion of the Postgraduate Certificate.

In addition, the requirements for the postgraduate diploma must be completed within three semesters of admission (if enrolled full time) or six semesters of admission (if enrolled part time). Each year of full-time study may be reassigned to part-time study, and vice versa. Students must be granted to a Postgraduate Diploma, admission to the postgraduate diploma programme. Transfer credit will not be given for courses from completed qualifications.

Eligibility for entry, timeframes and regulations

Postgraduate Diploma in Health Sciences (Medical imaging) student Zoe Campton works for Auckland District Health Board as a Medical Imaging Technologist.

“I love learning new things and doing my postgraduate diploma has given me a way to enhance my interests in image evaluation and clinical supervision. I started out by enrolling in a Postgraduate Certificate, and because I enjoyed it so much, this soon became a Diploma, and now I’m enrolling in a Masters!

“I’m currently working in a general x-ray department at a major trauma/teaching hospital so all of my courses have been relevant to what I see at work. I also enjoy being able to help the students at my workplace with their learning – I feel like I can answer most of their questions without having to refer to a textbook now!

“The on-campus events are a great way to meet other Medical Imaging students, and a great way to put a face to the names you read online. The lecturers are fantastic and are always around to answer questions, and the other students I have been studying with are now good friends of mine which is a great support network as we can bounce ideas off each other.

“Postgraduate study is challenging, but it is so rewarding. Finding that work/life/study balance has been hard, but the knowledge I have gained has been worth the extra work. Being more confident in clinical decision making is a huge benefit of undertaking study. It is also really satisfying to recognise something on an image and then follow up and realise you got it right!”

Zoe Campton
Postgraduate Diploma in Health Sciences (Medical imaging) student Zoe Campton
The Degree of Master of Health Sciences – MHSc

The regulations for this degree are to be read in conjunction with all other relevant statutes and regulations including the Academic Statutes and Regulations.

Admission
In order to be admitted to this programme, a student needs to have completed the requirements for the Postgraduate Diploma in Health Sciences, or its equivalent with an average grade of 80 or higher and not exceed 160 points for the total enrolment for this degree.

A 120 point thesis or research portfolio may be started on 1 March, 15 July or 1 December and must be completed within 2 years if enrolled part-time.

Research Masters
120 points: MLTHSCI 796 Thesis
OR
120 points: MLTHSCI 797 Research Portfolio
OR
90 points: MLTHSCI 793 Research Portfolio
AND
30 points from courses listed in the Master of Health Sciences Schedule

Taught Masters
60 points: MLTHSCI 790 Dissertation
AND
60 points from the courses listed in the Master of Health Sciences Schedule
OR
60 points: POPUHLTH 755 Applied Research Project
AND
60 points from the courses listed in the Master of Health Sciences Schedule

Contact
Medical Imaging Masters Advisor
Associate Professor Jenny Sim
Email: j.sim@auckland.ac.nz

Thesis, dissertation or research portfolio?
This is usually decided in consultation with an academic supervisor/adviser as part of the discussion on a suitable topic and research question.

The aim of the research, whether a thesis, dissertation or research portfolio, is to give you the opportunity to research a health issue and the following skills will be learned in the context of your specific project:

- Identifying and accessing the resources necessary to undertake the research.
- Reviewing and analysing relevant literature.
- Choosing a research methodology appropriate to the problem and scope of the study (depending on whether the project is a dissertation, thesis or portfolio) and rigorously applying that methodology whether it be quantitative, qualitative or conceptual.
- Reporting the project by covering purpose, background, method, findings, conclusions and recommendations.
- Interpreting the findings and identifying the wider implications of the project especially for healthcare in New Zealand.
- Identifying and addressing ethical issues.

Scope of a thesis
A thesis constitutes 90 points (Audiology) or 120 points (all other masters) and is a formal body of academic research which should display the following:

- It should contribute an investigation designed to analyse a proposition, problem area, or concept.
- It should display a critical approach to the topic.
- Relevant research literature will be reviewed, and will make clear the parameters used for including literature and the search strategy.
- The planning and execution of the research or analysis should be competent.
- The findings of the research or the outcomes of the analysis should be clearly described, supported by appropriate argument, and suitably documented.
- The implications for future research should be discussed.
- The thesis should meet standards of technical accuracy in writing and presentation, readability, debate and analytical thinking.
- Its length may vary but is expected to be about 40,000 - 50,000 words, including tables, figures and references, appendices can be additional. Length will vary with the nature of the topic, the methodology used and the credit point value.

Scope of a dissertation
A dissertation, at 60 points, may also be a formal academic research work, though with lesser workload and expectation than a thesis. It may also be a critical review or a comprehensive proposal for a research that may involve a pilot study, or analysis of data that has already been collected. On completion of a dissertation students should have demonstrated they understand, can interpret, and critique research.

The topic of a dissertation is preferably uncomplicated by requirements such as ethics approval or sample recruitment.

The expectations of a dissertation are:

- The dissertation should comprise a coherent and competently organised document.
- The rationale for the study should be clear, with a soundly constructed research question and objectives identified clearly.
- Relevant research literature will be reviewed, and will make clear the parameters used for including literature and the search strategy.
- Implications of the study and recommendations for theory and/or practice and for future research will be specified.
- The final document will meet standards of technical accuracy in writing and presentation, readability, debate and analytical thinking.
- Its length may vary but is expected to be about 30,000 words in length, including tables, figures and references, appendices are additional.

Darren Watts
Master of Health Sciences student Darren Watts works as an MRI Technologist at Dunedin Public Hospital. Darren commenced his study at the University of Auckland as one of the inaugural MRI student cohort.

“My Master’s research is centred around the recently discovered accumulation of gadolinium based MRI contrast agents in the brain. My main aims are to establish the most robust method to measure this accumulation using MRI, to use this method to discover the extent of accumulation in patients scanned at Dunedin Hospital, and to contribute to international understanding of this topic. This research is important because a better understanding of the effects of gadolinium contrast media will hopefully improve patient safety.

“I chose to complete my Master’s degree at the University of Auckland because I had already established a relationship with many of the teaching staff through the postgrad diploma I completed previously. I was particularly impressed with their ability to deliver course content to a class who were separated by both ability and distance. Being based in Dunedin, this was an important factor in my decision to return to the university.

“In the short term this qualification will help consolidate my knowledge of MRI contrast media and help guide the administration protocols in our department. Longer term, I hope this qualification will open the door to further study.”
Admission
For information regarding application for admission in 2017, students should visit The University of Auckland website: www.auckland.ac.nz/admission-and-enrolment

All students need to provide the documents listed below with their application. These should be a photocopy of the original endorsed with the statement ‘Original sighted, Certified true copy’. By a person authorised to sign a Statutory Declaration, such as a JP, Solicitor or a duly authorised member of staff of The University of Auckland.

- Verification of legal name, date of birth and citizenship status: passport, birth certificate or certificate of citizenship. If names have been changed, for example through marriage, such documentation must be provided.
- Verification of admission qualifications: your highest qualification, eg, hospital training certificate, polytechnic diploma, polytechnic degree, or university degree.
- If you hold a Polytechnic diploma or University or Polytechnic degree you must send in an official academic transcript.
- For Mammography, MRI, Nuclear Medicine and Ultrasound students, a completed clinical training position agreement form is required.

Electronic copies of all documents must be submitted digitally during the application process in addition to posting hard copies to the university.

Admission without an undergraduate degree

The University of Auckland allows MRIs to enrol in a postgraduate programme without an undergraduate degree, if they have a health professional qualification and at least two years clinical practice.

Admission with a postgraduate diploma

Students with a Postgraduate Diploma having achieved a grade point average of B+ or higher may apply for the Master of Health Science.

What’s the difference between admission and enrolment?

They are two separate processes. First you must be admitted to the University (through the admission process), and then you can enrol in the individual courses you want to take. New students – do this first:

1. Sign into Student Services Online.
2. From the home page quick link menu, click Application for Admission.
3. Select the term (semester) of the course.
4. Accept the terms and conditions of enrolment. The ‘Apply for a concession page’ will appear, showing the courses you selected from your enrolment cart.
5. Enter a clear description of why you think you should be allowed to enrol in this course.
6. Click the ‘Submit’ button. The ‘Concessions’ confirmation page will appear.
7. If the option to apply for a concession is available for the enrolment you want to complete, a Concessions button will show below the error message table. If the button’s not there, it means concessions for that enrolment error (such as a missing prerequisite) are not available for this course.
8. If you have the option to apply for a concession, complete the Concessions form.
9. Click the ‘Submit’ button. The Concessions confirmation page will appear.

When should I enrol?

Students can enrol from the first Monday in November for the following academic year. New students can enrol once they have gained admission and accepted their offer of a place. Enrol early and get into the courses you want.

Applying for an enrolment concession

For some course you may be asked to apply for an enrolment concession. Please follow these step-by-step instructions

1. Sign into Student Services Online.
2. Begin enrolling in the course.
3. Ignore validation error messages about the reason you need to apply for an enrolment concession.
4. Continue enrolling online until the final stage, which is after you have accepted the terms and conditions of enrolment. The enrolment error message will appear.
5. If the option to apply for a concession is available for the enrolment you want to complete, a Concessions button will show below the error message table. If the button’s not there, it means concessions for that enrolment error (such as a missing prerequisite) are not available for this course.
6. Click the Concessions button under the error message. The ‘Apply for a concession page’ will appear, showing the courses you selected from your enrolment cart.
7. Select a course (Subject/Catalogue) for which you want to apply for an enrolment concession.
8. Enter a clear description of why you think you should be allowed to enrol in this course.
9. Click the ‘Submit’ button. The Concessions confirmation page will appear.

Apply a concession:

1. Sign into Student Services Online (SSO).
2. From the home page quick link menu, click Concession Requests.
3. Select the term (semester) of the course your request applies to.

What happens next?

The faculty will review your request, make a decision and let you know the outcome by email. The final status of your request will also show in the Student Services Online system.

Returning students

Returning students wishing to progress to another qualification should apply online. For example, students who have completed a postgraduate certificate wishing to progress to a postgraduate diploma.

Change of address

It is important that students notify the University of any change of address as soon as possible. Please update your personal details through Student Services Online (Update My Details).

Applying to study at the University of Auckland is a four-step process:

1. Apply for admission to the University
2. Send required documentation to the University of Auckland
3. Accept an Offer of Place
4. Enrol in the course

Apply for a place in a programme(s)

Go to www.auckland.ac.nz and click ‘Apply Now’ button.

Complete the online application for a place in your programme of choice before the closing date.

For assistance please phone the student helpdesk on: 0800 61 62 65

You will receive an acknowledgement of your application by email. If your application is successful, you will receive an offer of a place in a programme. To accept the offer and view your application status online go to: www.studentservices.auckland.ac.nz/ssa

Offer

Accept or decline your offer of a place in a programme online.

Enrol in your choice of courses

Enrol in your chosen courses via the online Student Services Online system: www.studentservices.auckland.ac.nz/ssa/enrol-in-course

Congratulations! You are now a student at the University of Auckland.
Fees and funding

**Fees**
Information about fees is listed in The University of Auckland Calendar 2017 and is available at: www.auckland.ac.nz/uoa/fp-tuition-fees

Under government-to-government reciprocal agreements students from Australia and resident in New Zealand enrolled in a graduate programme pay the same fees as New Zealand students. For other international students the fees vary between faculties. Contact The University of Auckland International Office for further details.

**Tuition fees 2017**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Domestic students</th>
<th>International students</th>
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</thead>
<tbody>
<tr>
<td>MEDIMAGE courses</td>
<td>$1,114.90</td>
<td>$5,293.35</td>
</tr>
<tr>
<td>CLINIMAG courses</td>
<td>$1,114.90</td>
<td>$9,112.05</td>
</tr>
</tbody>
</table>

**University awards, scholarships and grants**

The University of Auckland offers postgraduate students a wide range of awards, scholarships, and research grants.

For more information on funding:
www.auckland.ac.nz/uoa/cs-postgraduate-research-funding

For information on internal scholarship opportunities, see the University of Auckland Scholarships and Awards website:
www.auckland.ac.nz/scholarships

or email: scholarships@auckland.ac.nz

For information on a range of external awards, see the Universities NZ website:
www.universitiesnz.ac.nz

For a list of upcoming Scholarships closing soon, see “Scholarship closing dates”:
www.auckland.ac.nz/scholarships-closing

**University of Auckland Masters, Honours and PGDip Scholarships**

The University of Auckland Masters, Honours and PGDip Scholarships are highly competitive and as such are awarded to the very highest achieving students. In the recent past the GPA of successful recipients has been around 7.50 or above (assessed by the Scholarships GPA over the last two years of full-time graduated study, or equivalent). Māori and Pacific Island students are encouraged to also apply for the University of Auckland Māori and Pacific Graduate Scholarships.

Students enrol in the programme specific to their clinical specialisation. If for any reason a change of programme is required, students must first contact the Medical Imaging Programme Coordinator by email at medicalimaging@auckland.ac.nz

When a decision to change programmes has been approved, then the student needs to apply to do so, on Student Services Online (SSO) at the following link: www.studentservices.auckland.ac.nz

**Apply to change your programme**

To change your programme at The University of Auckland, you simply apply for the new one online. This applies to students who are changing from a postgraduate certificate to postgraduate diploma programme when a clinical training position is secured.

If you receive and accept an offer of place for the new programme, you should withdraw from your current programme by contacting the Faculty student centre.

Website: www.auckland.ac.nz/uoa/cs-aus-faculty-student-centres

**Apply to change your plan**

If you want to change your plan (major, minor or specialisation) but not your programme (degree, diploma or certificate), please contact your Faculty student centre. This applies to students who are enrolled in the Postgraduate Diploma (Medical Imaging) or a generic postgraduate diploma in health sciences and need to change specialisation when securing a clinical training position.

**Faculty Student Centre**

Ground floor, Building 503, Faculty of Medical and Health Sciences, 65 Park Road, Grafton, Auckland

Phone: +64 9 308 2380

Fax: +64 9 308 2380

Email: fmhs@auckland.ac.nz

Changing programmes

Changing course enrolment

**Deletions**

If you drop (delete) a course by the deadline, we’ll refund your fees for the course and it will not appear on your academic record.

**Deadline for Deletions**

Semester One courses: second Friday of semester
Semester Two courses: second Friday of semester

**Withdrawals**

A withdrawal is when you drop a course after the deadline. If you are considering withdrawing from a course, think this decision through carefully and seek help and advice before proceeding.

If you withdraw from a course, please be aware that:

- You will not receive a refund of fees for the course(s) you withdraw from.
- The course will remain on your academic record as a Withdrawal (W), which is counted as a 0 (zero) when your GPA is calculated.
- The course you withdraw from is counted as a failed course for purposes such as student allowance applications and satisfactory progress regulations.

**2017 Deadlines for Withdrawals**

Semester 1 courses: Friday 19 May 2017
Semester 2 courses: Friday 6 October 2017

**Late Deletion**

Late Deletion is available to students who are unable to continue with their study because of exceptional circumstances such as illness, injury or events beyond their control. Applications must include independent evidence to verify the circumstances.

Circumstances that would not normally qualify for late deletion are situations that were known at the point of enrolment, were due to personal choice (eg financial circumstances, accepting a job offer) or Grade Point Average concerns.

Please contact the Medical Imaging Programme Coordinator by email at medicalimaging@auckland.ac.nz so that they can explain how this process may impact on your programme and progression - you will not be required to explain your circumstances.

**Graduation**

When you have successfully completed the requirements for a postgraduate diploma or masters programme, you are invited to apply to graduate online. There are two graduations each year, one in autumn in early May, and one in spring towards the end of September. More information:
www.auckland.ac.nz/graduation

**Certificate completion**

Students do not attend a graduation ceremony on completion of a postgraduate certificate – the certificate needs to be requested from Student Records, City Campus, by emailing: records@auckland.ac.nz with your student ID number and current address.
The University of Auckland resources and facilities

Libraries and Learning Services
Libraries and Learning Services provide resources, workshops and advice to support staff and students in their teaching, learning and research activities. The Philson Library, Grafton Information Commons, Medical Imaging Subject Librarian and Student Learning Advisors all offer resources and advice to help you succeed in your postgraduate study.

Philson Library
Philson Library is located on the first floor, Building 503 on the Grafton Campus. The collection of print and electronic resources supports student learning and research, staff will assist you to find the information you need. There are computers, borrowable laptops, and printer/copiers available in the library along with group and individual study spaces.

For full contact details and opening hours go to: www.library.auckland.ac.nz/about-us/libraries/philson

To borrow or access resources from the Philson Library students need a current University ID card. For more information see: www.auckland.ac.nz/uoa/fo-id-cards

Libraries and Learning Services website
www.library.auckland.ac.nz

The Libraries and Learning Services website provides access to various online resources and guides including information about referencing. For specific resources in the Medical & Health Sciences including Medical Imaging go to the Libraries and Learning Services website, select: Subject Guides – Medical & Health Sciences

Flexible Service – distance students
A flexible service is available to students of the Faculty of Medical & Health Sciences. You may request books or journal articles to be sent to you, whether or not they are held in a University of Auckland Library.

For more information, www.library.auckland.ac.nz/flexible-service

Intercampus requests
The intercampus service allows you to obtain books or photocopies of articles held in other libraries within The University of Auckland, e.g. Tamaki Library, General Library.

Search the Catalogue for the item you require, click on the ‘Request’ tab and fill in the appropriate details. Flexible students should select ‘Flexible – Medical’ as the pickup location (after registration, see Flexible Service above).

Interloan requests
To obtain books or journal articles not held in a University of Auckland Library, fill in the online form: www.library.auckland.ac.nz/interloans

Note: Electronic delivery of articles to students by email can only be made to their University of Auckland email address.

Subject Librarian: Fran Clements
Fran Clements
Subject Librarian, School of Medical Sciences
Philson Library/Te Herenga Hauora
The University of Auckland
Private Bag 92019
Auckland Mail Centre
Auckland 1149
New Zealand

Direct Dial: (09) 931 9121
Internal: ext. 89111
Fax: (09) 373 7491
Email: f.clements@auckland.ac.nz

Copy and print service
Photocopying and printing services are available in the Philson Library and the Grafton Information Commons. Your University ID card is your photocopying/printing card. An ePOS machine for loading money onto an ID card is located in the Grafton Information Commons. The cost is 30 cents per A4 copy, or 20 cents per A4 colour copy.

Grafton Information Commons
Offers more than 80 computers which provide access to a wide range of software and internet resources. In addition there are scanners, printer/copiers, a HelpDesk Service, and a range of casual seating.

After hours
Students and staff will need to carry their university ID and access cards at all times to allow entry and internal movement around the Grafton Campus buildings and facilities.

However, public access to the Cafi and library will continue to remain available during normal opening hours.

The atrium main entrance is open Monday to Friday at 9am and its closure depends on the library hours. During weekends it is open according to the library.

Students may be in the building when the library or information Commons is open or if they have scheduled teaching or tests. Postgraduates may have access outside of these times if permission is obtained from a supervisor however nobody may be here alone at any time.

University of Auckland Systems

Username and password
All students have a username and password, in addition to your Student ID number. Your username and password allow you to:

• Access Library electronic resources off campus,
• Log in to computers in the Library,
• Access the internet on campus,
• Access the internet on campus.
• Use the Copy and Print Service (CAPS) on campus.
• Access Student email.
• Access Canvas and Student Services Online (SSO).
• Access to your electronic clinical portfolio.

Student email
Each student is allocated an email address. Your address is your username then the electronic campus email address: ejj.jbon007@auclanduni.ac.nz

To access your email from The University of Auckland website, use the Quick Links dropdown menu and select Student email.

www.auclanduni.ac.nz

Note: All official university communications go to your university (electronic campus) email. Check it regularly or redirect to your preferred email address, e.g. home or work.

Student Services Online
Student Services Online is the University’s academic management system, which students access online.

Student Services Online allows you to apply for admission to the University, enrol in classes, update your details and much more. If you have any questions or require assistance, please contact the Student Services Online via email: studentinfo@auckland.ac.nz

Website: www.studentservices.auckland.ac.nz

Phone: 0800 61 62 63
Email: studentinfo@auckland.ac.nz

Use Student Services Online:

• Find out about courses available.
• View your programme requirements.
• Enrol in and delete courses.
• Keep contact details updated.
• View your academic records.
• Apply for graduation.
• Change your programme.

Student Services Online has video tutorials and an online Help function, to guide you through using the various features.

AMRF Medical Sciences Learning Centre – Whakaroa Pai
The AMRF Medical Sciences Learning Centre is a purpose-built and architecturally-designed facility for undergraduate, graduate and postgraduate education in anatomy, radiology and pathology.

The Centre combines the Medical School’s anatomy and pathology museums and contains a wide range of anatomical models and specimens covering all body systems, over 1100 pathology specimens, and an extensive on-line radiology and pathology image database.

AMRF Medical Sciences Learning Centre - Whakaroa Pai

Student Advice Hub
We’re here to help!
Unfortunately, life and studies sometimes don’t run as smoothly as you hope. The Student Advice Hub is where you can access AUSA’s advocacy, welfare and representation services when things go wrong. We offer free and confidential support to all students, and are independent from the University. Our staff can help you with:

• Academic complaints and study problems
• Debt or funding issues
• Housing and tenancy queries
• Employment issues and much more!

Visit us at the Student Advice Hub in Old Choral Hall rooms G15 or G09. You can also contact us or make an appointment at:

Email: cityhub@ausa.org.nz
Phone: 09 933 7299 or ext: 87294
Support for postgraduate study

Orientation to study for new Medical Imaging students

Each semester the Medical Imaging team in conjunction with the Libraries and Learning Services runs an on-campus orientation workshop for new students. All students who are new to study at The University of Auckland are strongly advised to attend. There is no charge associated with the orientation days.

The Medical Imaging Team sessions include:
- Logistics for getting started
- Online learning tools
- Clinical competency requirements
- Electronic Clinical Portfolios

The Student Learning Services sessions include topics such as:
- Managing your postgraduate studies
- Achieving your academic potential
- Understanding expectations for postgraduate writing
- Reviewing the literature
- Academic integrity

The Library sessions include:
- Accessing library resources
- Using the library catalogue
- Finding electronic articles
- Searching databases to find information for your assignments
- Referencing

2-day Medical Imaging orientation workshops will be held for new students in the first week of each semester.
- Semester 1, 2017: Monday 6 March and Tuesday 7 March
- Semester 2, 2017: Monday 24 July and Tuesday 25 July

Academic integrity course

As a student of the University of Auckland, you are a member of a distinguished academic community. The University is committed to providing all the support you need to understand what working to a high level of academic integrity means for you. University-level work requires that you acknowledge all sources according to the referencing requirements of your subject.

The University of Auckland offers an Academic Integrity course to help you understand the high level of academic integrity expected of you. All students new to the University are required to complete the course.

For more information www.auckland.ac.nz/academic-integrity

English Language Enrichment (ELE)

ELE provides opportunities for any student enrolled at the University of Auckland to improve their academic English. At ELE on the City Campus you can use English language resources, get advice about your English, and join language learning groups. Visit whenever you like and for as long as you like.

Language Exchange (LEX) enables you to find others who can help you improve your spoken English, and ELE Online provides language learning materials, including vocabulary, grammar and pronunciation tools to help improve your academic English.

You can access these resources anytime, anywhere with your University username and password.

Email: 4ls.ele@auckland.ac.nz
Website: www.library.auckland.ac.nz/ele/

Student Learning Services

Student Learning Services (SLS) offers academic development workshops relevant to all phases of undergraduate and postgraduate study. Topics include strategies for succeeding at university, writing academic essays, reading and note-taking, critical thinking, developing academic English skills, research techniques and thesis writing. SLS also has a Māori and Pasifika programme: Ti Faka Pouakaihina.

Find workshop details and book online at: www.library.auckland.ac.nz/booking

Student Learning Advisers are available for individual or small group advisory sessions. Contact the Student Learning Services Helpdesk to book an advisory session.

Student Learning Services
Building 503 Room 113
Phelon Library, 85 Park Road, Grafton
Phone: +64 9 323 9269 or 933 8850
Email: sls@auckland.ac.nz
Website: www.library.auckland.ac.nz/student-learning/

Student Disability Services

The Learning Disabilities Programme provides learning assessments, recommendations for special exam conditions and academic development opportunities to University of Auckland students.

The Learning Disabilities (LD) Programme supports students with specific learning and/ or other invisible disabilities such as: dyslexia, dyspraxia, Autism Spectrum Disorder, attention deficit disorders and mental health conditions.

Website: www.auckland.ac.nz/disability-services

Student representation

postgraduate Medical Imaging students are represented on the Medical Imaging Postgraduate Board of Studies. Students are encouraged to nominate who they would like to represent them.

Supporting websites

The University home page

Access to a computer is essential for all postgraduate students. So is knowing your way around the University’s websites. Take some time to familiarise yourself with it at www.auckland.ac.nz

Quicklinks:
- A to Z directory
- Accommodation
- Canvas (access your course information here)
- Student Services Online (access your personal information here)
- University calendar
- Student email (access your University email account here)
- Password change (to get a new or reset password)

Current students

If you click on Current Students in the left side bar menu you can access most of the generic information you will need.

Our Faculty of Medical and Health Sciences website

www.fmhs.auckland.ac.nz

Clicking on Future Postgraduates on the left side bar menus takes you to information about a range of supporting facilities and services for postgraduate students.

Under Postgraduate study options, you can find details of our programmes and www.individual MEDIMAGE and CLNIMAGE course pages which have a downloadable Course Outline.pdf with details of the course including learning outcomes, assessment overview and required textbooks where applicable.

Quicklinks:
- Canvas
- Change password
- Student email
- Student Services Online
- Libraries and Learning Services
- University Calendar

The Medical imaging discipline website

www.auckland.ac.nz/medical-imaging

Go to our website for more information about our programmes, the Medical Imaging team, our vision and mission, and to access our ‘Insight’ newsletter for the Medical Imaging professional community.

Dr Beau Pontré, Medical Imaging physics lecturer, leads a tutorial with students.
It is the student's responsibility to check that the final programme complies with University Regulations. The Faculty of Medical & Health Sciences Student Centre is the final authority on all programme regulations.

Degree Planner

See the Faculty of Medical & Health Sciences Student Centre for degree planning advice.

Pathway endorsed by:

Postgraduate Certificate in Health Sciences (PGCertHSc)
60pts – 2 years part time

Postgraduate Diploma in Health Sciences (PGDipHSc)
120pts – 4 years part time

Master of Health Sciences (MHSc) 120pts + PGCertHSc*
Combine to make 60 points

Option 1
Research Masters
Thesis (120 pts)
or
Research Portfolio (120 pts)

Option 2
Research Masters
Research Portfolio (90 pts)
and
30 pts of courses

Option 3
60 pts of courses
and
Dissertation (60 pts)

* B grade average (gPa5) required to progress to Masters

If completing a Master of Health Sciences with a Thesis or research Portfolio, then a research course is a prerequisite.

For more information about courses and course dates, see our website: www.fmhs.auckland.ac.nz/medical-imaging
For more information about enrolment contact the Faculty Student Centre: fmhs@auckland.ac.nz
For individual advice on course selection, email the Medical Imaging Programme Coordinator: medicalimaging@auckland.ac.nz

Important dates

Closing date for applications 2017*
Semester One admission 27 January 2017
Semester Two admission 16 June 2017

*Late applications will be accepted on a case by case basis

Academic Year

Semester One – 2017
Semester One begins Monday 6 March
Medical Imaging Orientation Monday 6 March and Tuesday 7 March
Mid-semester break/Easter Friday 14 April - Saturday 19 April
Medical Imaging Symposium Monday 1 May - Wednesday 3 May
ANZAC Day Tuesday 25 April
Graduation Monday 1, Wednesday 3, Friday 5 May
Queen’s Birthday Monday 5 June
Semester One ends Monday 3 July
Inter-semester break Tuesday 4 July - Saturday 22 July

Semester Two – 2017
Semester Two begins Monday 24 July
Medical Imaging Orientation Monday 24 July and Tuesday 25 July
Mid-semester break Monday 4 September - Saturday 16 September
Graduation Tuesday 26 September
Labour Day Monday 23 October
Semester Two ends Monday 20 November

Semester One – 2018
Semester One begins Monday 26 February 2018
Medical Imaging contacts
For academic or general Medical Imaging programme enquiries contact:
medicalimaging@auckland.ac.nz
For Medical Imaging clinical programme enquiries contact:
MIclinical@auckland.ac.nz

Faculty of Medical and Health Sciences
Student Centre
Ground floor, Building 503
Faculty of Medical and Health Sciences
85 Park Road, Grafton
Auckland
Phone: +64 923 2760
Fax: 0800 61 62 64
Email: fmhs@auckland.ac.nz
Open: 8.30am-4.30pm, Monday to Friday, all year round (except public holidays, Christmas Eve, and the day after Easter Monday)

Postal Address
The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand