



# CHIR8401

## Diagnostic Imaging 1

Session 1, In person-scheduled-weekday, North Ryde 2024

*Department of Chiropractic*

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# General Information

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Credit points

10

Prerequisites

Admission to MChiroprac and (CHIR3106 or CHIR316) or ((CHIR6302 or CHIR604) and (CHIR6303 or CHIR605) and (CHIR6410 or CHIR606))

Corequisites

Co-badged status

Unit description

This unit develops radiographic interpretation skills of the musculoskeletal system, including the spine and extremities, using a categorical approach. You will build on knowledge of the pathophysiology of disease to recognise related changes on radiographs and use this knowledge to formulate a differential diagnosis. You will also learn to perform radiographic techniques of the spine and extremities, with a focus on routine projections. This unit forms part of a suite of units in radiographic science in the chiropractic degree programs that leads to eligibility for licensure to own and operate radiographic equipment upon graduation from the Master of Chiropractic.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** Critique radiographic images for image quality and identify the range of normal anatomical appearances on spinal and extremity radiographs and spinal CT and MRI. Recognise and describe reasons for variance in image appearance using appropriate radiographic terminology.

**ULO2:** Describe how disease pathophysiology results in, or relates to, specific radiographic findings.

**ULO3:** Execute a thorough assessment of radiographic images of the spine and extremities and differentiate and describe abnormal radiographic appearances using appropriate radiographic terminology.

**ULO4:** Implement and discuss principles of radiography as applicable to chiropractic practice.

**ULO5:** Synthesise radiographic and clinical findings to determine a differential diagnosis for a radiographic image using a categorical approach.

## General Assessment Information

Grade descriptors and other information concerning grading are contained in the [Macquarie University Assessment Policy](#).

All final grades are determined by a grading committee, in accordance with the Macquarie University Assessment Policy, and are not the sole responsibility of the Unit Convenor.

Students will be awarded a final grade and a mark which must correspond to the grade descriptors specified in the [Assessment Procedure](#) (clause 127-8).

To pass this unit, you must demonstrate sufficient evidence of achievement of the learning outcomes, meet any ungraded requirements, and achieve a final mark of 50 or better.

Further details for each assessment task will be available on iLearn.

## Late Submissions

Unless a Special Consideration request has been submitted and approved, a 5% penalty (OF THE TOTAL POSSIBLE MARK) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical concern.

For example:

Number of days (hours) late	Total Possible Marks	Deduction	Raw mark	Final mark
1 day (1-24 hours)	100	5	75	70
2 days (24-48 hours)	100	10	75	65
3 days (48-72 hours)	100	15	75	60
7 days (144-168 hours)	100	35	75	40
>7 days (>168 hours)	100	-	75	0

For any late submissions of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Radiography assessment</a>	15%	No	In tutorial time, weeks 5, 9, 13
<a href="#">Radiographic interpretation portfolio</a>	20%	No	Week 6, March 28th and Week 10, May 10th
<a href="#">Radiographic interpretation slide exam</a>	20%	No	Week 12, Friday 24th May, 10am-2pm
<a href="#">Final theory exam</a>	45%	No	Examination period

### Radiography assessment

Assessment Type <sup>1</sup>: Clinical performance evaluation

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **In tutorial time, weeks 5, 9, 13**

Weighting: **15%**

Students required to perform routine radiographic imaging techniques in a simulated clinical environment

On successful completion you will be able to:

- Implement and discuss principles of radiography as applicable to chiropractic practice.

### Radiographic interpretation portfolio

Assessment Type <sup>1</sup>: Portfolio

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 6, March 28th and Week 10, May 10th**

Weighting: **20%**

Students required to assess, critique, and interpret a collection of radiographic images throughout the semester using a categorical approach

On successful completion you will be able to:

- Critique radiographic images for image quality and identify the range of normal

anatomical appearances on spinal and extremity radiographs and spinal CT and MRI. Recognise and describe reasons for variance in image appearance using appropriate radiographic terminology.

- Describe how disease pathophysiology results in, or relates to, specific radiographic findings.
- Execute a thorough assessment of radiographic images of the spine and extremities and differentiate and describe abnormal radiographic appearances using appropriate radiographic terminology.
- Synthesise radiographic and clinical findings to determine a differential diagnosis for a radiographic image using a categorical approach.

## Radiographic interpretation slide exam

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 12, Friday 24th May, 10am-2pm**

Weighting: **20%**

Students required to interpret a range of radiographic images in a timed duration format

On successful completion you will be able to:

- Critique radiographic images for image quality and identify the range of normal anatomical appearances on spinal and extremity radiographs and spinal CT and MRI. Recognise and describe reasons for variance in image appearance using appropriate radiographic terminology.
- Execute a thorough assessment of radiographic images of the spine and extremities and differentiate and describe abnormal radiographic appearances using appropriate radiographic terminology.
- Synthesise radiographic and clinical findings to determine a differential diagnosis for a radiographic image using a categorical approach.

## Final theory exam

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 25 hours

Due: **Examination period**

Weighting: **45%**

Exam period final theory exam

On successful completion you will be able to:

- Critique radiographic images for image quality and identify the range of normal anatomical appearances on spinal and extremity radiographs and spinal CT and MRI. Recognise and describe reasons for variance in image appearance using appropriate radiographic terminology.
- Describe how disease pathophysiology results in, or relates to, specific radiographic findings.
- Execute a thorough assessment of radiographic images of the spine and extremities and differentiate and describe abnormal radiographic appearances using appropriate radiographic terminology.
- Implement and discuss principles of radiography as applicable to chiropractic practice.
- Synthesise radiographic and clinical findings to determine a differential diagnosis for a radiographic image using a categorical approach.

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

As a student enrolled in this unit, you will engage in a range of online and face-to-face learning activities, including weekly online modules (including readings and videos) and tutorials. Details can be found on the iLearn site for this unit.

### Recommended Text:

Yochum, T & Rowe, L; 2005; Essentials of Skeletal Radiology Vol I & II (3rd Ed); Lippincott, William & Wilkins; Baltimore

### Required Manuals/Notes/Materials:

Set of left and right radiographic markers. Radiographic markers are available from a number of online sites. It is required that you have markers for use in radiographic positioning tutorials and competencies.

Online Module notes (available electronically on ilearn)



Radiographic Interpretation Discussion Tutorial notes (available electronically on ilearn)

Radiographic Interpretation Skills Tutorial notes (available electronically on ilearn)

Radiographic Positioning Manual, 2023 (available electronically on ilearn)

### Radiographic Library:

The radiographic library (RADLAB) houses over 1000 xray and digital access will be provided through ilearn for revision purposes.

### Internet:

Google images is a great resource for sourcing conditon-specific radiographic images. There are many websites available with extensive radiographic image libraries and this is also a valuable revision tool. Some useful websites are:

Radiopaedia: <https://radiopaedia.org/>

Learning Radiology: <http://www.learningradiology.com/>

### Technology Used:

Active participation in the learning activities throughout the unit will require students to have access to a tablet, laptop or similar device. Students who do not own their own laptop computer may borrow one from the university library.

## Unit Schedule

Topics covered in this unit are outlined below. Please see the unit ilearn page for the weekly schedule.

Image assessment and radiographic critique	Image production introduction
Alignment disorders	Thoracic spine positioning
Congenital anomalies and dysplasias	Cervical spine positioning
Trauma	Lumbopelvic spine positioning
Arthritis	Hip and Femur positioning
Tumours	Knee and Lower leg positioning
Infection	Foot and Ankle positioning
Endocrine and Metabolic disorders	Shoulder girdle and Humerus positioning
Vascular and Growth disorders	Elbow, Forearm, and Wrist positioning
Spinal CT and MRI assessment and normal anatomy	Hand and Thumb positioning

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## The Writing Centre

The [Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Changes from Previous Offering

The radiographic portfolio has changed from weekly submission to two submission time-points, please see iLearn for more details.

The assessment weighting has changed, with an increase in the radiography assessment to 15% and a decrease in the final theory exam to 45%.

The content in the unit has been reviewed and consolidated to ensure appropriateness to achieve the learning outcomes.

## Inclusion and Diversity

Social inclusion at Macquarie University is about giving everyone who has the potential to benefit from higher education the opportunity to study at university, participate in campus life and flourish in their chosen field. The University has made significant moves to promote an equitable, diverse and exciting campus community for the benefit of staff and students. It is your responsibility to contribute towards the development of an inclusive culture and practice in the areas of learning and teaching, research, and service orientation and delivery. As a member of the Macquarie University community, you must not discriminate against or harass others based on their sex, gender, race, marital status, carers' responsibilities, disability, sexual orientation, age, political conviction or religious belief. All staff and students are expected to display appropriate behaviour that is conducive to a healthy learning environment for everyone.

## Professionalism

In the Faculty of Medicine, Health and Human Sciences, professionalism is a key capability embedded in all our courses.

As part of developing professionalism, students are expected to attend all small group interactive sessions including clinical, practical, laboratory, work-integrated learning (e.g., PACE placements), and team-based learning activities. Some learning activities are recorded (e.g., face-to-face lectures), however you are encouraged to avoid relying upon such material as they do not recreate the whole learning experience and technical issues can and do occur. As an adult learner, we respect your decision to choose how you engage with your learning, but we would remind you that the learning opportunities we create for you have been done so to enable your success, and that by not engaging you may impact your ability to successfully complete this unit. We equally expect that you show respect for the academic staff who have worked hard to develop meaningful activities and prioritise your learning by communicating with them in advance if you are unable to attend a small group interactive session.

Another dimension of professionalism is having respect for your peers. It is the right of every student to learn in an environment that is free of disruption and distraction. Please arrive to all learning activities on time, and if you are unavoidably detained, please join activity as quietly as possible to minimise disruption. Phones and other electronic devices that produce noise and other distractions must be turned off prior to entering class. Where your own device (e.g., laptop) is being used for class-related activities, you are asked to close down all other applications to avoid distraction to you and others. Please treat your fellow students with the utmost respect. If you are uncomfortable participating in any specific activity, please let the relevant academic know.

## Changes since First Published

Date	Description
05/02/2024	Updated order of learning outcomes
01/02/2024	Portfolio submission date changed
30/01/2024	Changed order of assessments to chronological order

Unit information based on version 2024.02 of the [Handbook](#)