

CLINIMAG 709

PRINCIPLES OF CLINICAL ULTRASOUND

15 points

Semester 1 or Semester 2, 2018

Course Description

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 leg veins and perform examinations of these areas.

Objectives of the Course

This course aims to provide students with specialised theoretical knowledge and an understanding of the fundamental physical principles of ultrasound. The student will develop the ability to apply this knowledge in the safe use of ultrasound equipment for clinical and/or research purposes. In particular, this course will investigate common pathologies and the use of standard sonography imaging techniques in relation to a selection of common ultrasound applications. In addition, the course aims to develop clinical competence that is expected of a trainee sonographer during the initial phase of clinical training. The emphasis is on the synthesis of theory and clinical practice with the aim of developing a reflective sonography trainee, who will be well prepared to perform ultrasound scanning under supervision.

Learning Outcomes

1. Demonstrate an understanding of theoretical concepts relating to ultrasound technology.
2. Critically discuss specific issues relating to bio-effects and safety within the ultrasound environment.
3. Differentiate and explain normal and altered ultrasound imaging appearances of the abdomen, pelvis and lower leg veins.
4. Make informed clinical judgements with regard to the selection of appropriate scanning techniques and technical parameters for ultrasound imaging of the abdomen, pelvis, and lower leg veins.
5. Apply an evidence-based approach to clinical decision-making and problem solving.
6. Demonstrate professionalism and appropriate levels of communication with patients during sonography imaging.
7. Demonstrate clinical competence of a trainee sonographer in performing basic ultrasound examinations of the abdomen, pelvis and lower leg veins.

Teaching Staff



Karen Wallis
Course Coordinator
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Programme and Course Advice

Prerequisite or corequisite: MEDIMAGE 716

This course is part of the PGDipHSc (Ultrasound) programme. It is a requirement for admission to this course that the student must be a full time student during this semester of study and has an appropriate clinical training position. For further details regarding admission criteria for this course, please see '2018 Pathways' document (available on the University website).

Course Delivery

This course is offered in both Semester 1 and Semester 2 and is delivered at Grafton campus with daily tutorial and practical scanning sessions. **Full time daily campus attendance is compulsory** as students will be required to participate in all learning sessions. Content resources will also be delivered online via the University of Auckland's learning management system 'Canvas'.

Students are urged to discuss privately any impairment-related requirements face-to-face and/or in written form with the Course Coordinator.

Workload and contact hours

The total expected workload for this course is approximately **150 hours**. This may be broken down as follows:

- Set readings and other resources provided on Canvas e.g. videos, websites (20 hours)
- Tutorial and laboratory participation (70 hours)
- Assignments and self-directed learning (60 hours)

As this is a clinical course, students will accumulate practical scanning hours as part of meeting the Medical Radiation Technologists Board's accreditation requirements. Provisions will be available for students to practise their scanning techniques throughout the semester in preparation for their clinical assessments.

Communication

All official communication to a student will be sent to the student's current University email address (username@aucklanduni.ac.nz) and the student is responsible for ensuring that any desired forwarding to other addresses is in place and operating correctly. Staff will not be responsible for any consequences if students fail to read and respond to University correspondence in a timely manner.

Students are encouraged to use the course discussion forum as much as possible for communication with staff and other students. Email may be used for more private matters. Staff will endeavour to respond to email queries as soon as possible.

Course Textbooks

The **required textbooks** for this course are:



The physics and technology of diagnostic ultrasound: a practitioner's guide

Robert Gill

Abbotsford, N.S.W.: High Frequency Publishing c2012



Sonography: introduction to normal structure and function (4th ed.)

Reva Curry and Betty Bates Tempkin

St Louis: Elsevier Saunders c2016

Both of the above books are available in hardcopy from the Philson Library. In addition, a large selection of other resources will be able to be accessed online via the course website and the Philson Library databases.

Pre-Course Reading

It is highly recommended that students access the online textbook '**Clinically oriented anatomy**' (7th ed.) by Moore, Dalley and Agur (2014) via the Philson Library and read 'Chapter 2: Abdomen' and 'Chapter 3: Pelvis and Perineum' as this will be assumed prior knowledge when you begin the course.

Assessment

An aggregated mark of 50% or more is required to successfully pass this course. Resubmission of failed assessments is not permitted.

Penalties for excessive word count and/or late submission (without prior written approval for an extension) will be applied in accordance with the 'Medical Imaging Assessment Requirements and Presentation Criteria' document.

The following is indicative of the type of assessments to be completed for this course:

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| • Clinical Decision-Making Portfolio | 50% |
| • MCQ, Short Answer and Image Evaluation Test | 30% |
| • ePortfolio: Oral assessment | 20% |
| • ePortfolio: Practical assessment | Pass/fail |

Assessment of clinical competence is embedded in this course. Failure to submit or successfully pass any of the clinical ePortfolio components will result in a failing grade for the course. Poor clinical performance cannot be offset by excellent academic results. Please refer to clinical course documentation for further details.

Academic Integrity

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's own work, reflecting his or her learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the world-wide web. All students' assessed work will be reviewed against electronic source material using computerised detection mechanisms.

Student Feedback

Assessments will be marked, moderated and returned within 3 weeks of submission, with the possible exception of the last course assessment which will be returned after the Board of Examiners meeting. Feedback will be provided on all assessments in the form of a marking rubric and/or individual or class comments. This feedback will be accessed via email or Canvas as identified by the Course Coordinator.

At the end of this course, feedback from students may be requested in the form of an online course evaluation survey.

Disclaimer

Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only for students and is subject to alteration.

