

UNSW



THE UNIVERSITY OF NEW SOUTH WALES

Exercise Physiology Program

School of Medical Sciences

Faculty of Medicine

HESC2452

Movement Assessment and Instruction

Semester 2, 2012
Course Outline

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Staff Contact Details

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Course details

Credit Points: 6 UOC

Course Prerequisites / Assumed Knowledge

ANAT2451 and BIOM2451

Course Description

This course will equip you with skills and knowledge for assessing and instructing exercises and other movements. You will integrate concepts from biomechanics, functional anatomy, and motor learning and skill acquisition in the analysis of exercises, work tasks and activities of daily living. You will refine skills in quantitative and qualitative analysis of movement. The course will also cover aspects of exercise prescription (instruction) and approaches to movement education. You will develop practical skills in teaching new or modified exercises, work tasks or activities of daily living, giving consideration to pedagogical theory in relation to the instruction of movement.

Aims of the Course

1. To encourage students to integrate and apply concepts from biomechanics and functional anatomy
2. To extend students' understanding of motor learning and instructional approaches for training people in movement tasks
3. To introduce students more generally to educational theory and practice to support their professional development in being able to themselves train student clinicians in their future professional work
4. To meet industry requirements for professional work in workplace rehabilitation

Student Learning Outcomes

This term is used to describe what it is that you should be able to do, explain or understand if you have learned effectively in the course. For each lecture, tutorial, practical and assessment item, the expected learning outcomes will be explicitly stated. The assessment in the course will be matched as closely as possible to the stated learning outcomes. That is, the assessment will test how well you have achieved the learning outcomes of the course. The general learning outcomes for the course are as follows:

At the end of the course you should be able to:

1. Demonstrate technical skills for quantitative and qualitative assessment of human motion
2. Identify the loads experienced by specific anatomical structures during different postures and movements, and to recognise when this poses a risk of injury
3. Understand the appropriateness and effectiveness of different teaching and feedback strategies for movement instruction
4. Have an ability to communicate information to clients and patients in training and rehabilitation programs
5. Have an appreciation and understanding of the implications of individual differences on motor learning and skill acquisition

Graduate Attributes

- Deliver lifestyle change programs that use exercise for the primary prevention of disease and the management of chronic disease
- Apply clinical skills and knowledge relevant to cardiopulmonary, metabolic, musculoskeletal and neuromuscular rehabilitation
- Communicate effectively with patients, colleagues and other health professionals
- Work as a member and a leader of a team
- Display a respect for diversity and a high standard of ethical practice

Rationale for the inclusion of content and teaching approach

How the course relates to the Exercise Physiology profession – Assessment and instruction of movement tasks related to exercise, workplace tasks, and activities of daily living is a fundamental clinical skill required within the exercise physiology profession. Graduating students must therefore be proficient in assessing and instructing exercises and other movements. This course integrates concepts from functional anatomy, biomechanics, motor control and learning, and applies them to the assessment and instruction of movement. Students will develop the necessary skills for quantitative and qualitative assessment of human movement, for designing suitable exercise and rehabilitation programs, and for teaching patients and clients appropriate and safe techniques for performance of exercises, work tasks or activities of daily living.

How the course relates to other courses in the Exercise Physiology program – This course extends knowledge and skills acquired from courses in Introductory Exercise Science (HESC1501), Exercise Programs & Behaviour (HESC1511), Functional Anatomy (ANAT2451), and Biomechanics for Health and Exercise Science (BIOM2451), to apply these to analysing (quantitatively and qualitatively) movements (exercises, work tasks and activities of daily living) and identifying how different tissues are loaded in these movements. Skills and knowledge introduced in this course will be further developed throughout the program, in particular in Physical Activity and Health (HESC3504), Muscle and Motor Control (NEUR3101), Movement Rehabilitation (HESC3532), Neuromuscular Rehabilitation (HESC3592) and in Clinical Practicum A & B (HESC4611 & HESC4622).

Teaching strategies

Lectures – This approach is used to present relatively large amounts of information within a given time on specific topics throughout the course. PDF copies of the lecture notes will be available online (see below in COURSE RESOURCES section) prior to or after each lecture, so you should be able to think about and develop an understanding of the lecture concepts as they are presented, rather than writing voluminous notes. However, there will be information and explanations presented in lectures in addition to those covered in the notes that you should take down if they help you to understand the material. The lecturer will also try to allow some time for interaction and activities in each lecture to provide you with an opportunity to clarify or reinforce the ideas that have been presented. You should take these opportunities to think about the information that has been presented and ask questions to enhance your understanding.

Laboratories – The purpose of the practical components of the course are twofold. The first purpose is to help you to develop technical skills that will be relevant in your professional career. It is essential that you obtain some hands-on experience with the major clinical and/or research techniques in movement assessment and instruction before you begin your clinical practicum. These skills will be rehearsed and developed further during subsequent courses in the program. The second purpose is to use experiments to demonstrate and reinforce key theoretical concepts that have been covered in lectures. The questions contained in the practical outlines will guide your learning in this respect.

Tutorials and Clinicals – This format provides a more informal learning environment than a lecture. Sessions will be structured to encourage your participation in activities and discussions designed to enhance your learning. You will benefit most if you do some preparation prior to attending the session.

Independent study – There is insufficient time in the lectures, tutorials and practicals for you to develop a deep understanding of the concepts covered in this course. In order for you to achieve the learning outcomes that will be assessed, you will need to revise the material presented in the course regularly. You will probably also need to do additional reading beyond the lecture materials in order to learn effectively. Relevant additional resources, including textbook chapters, will be cited in each lecture.

Assessments – These tasks have been chosen as tools to enhance and guide your learning as well as a way of measuring performance, and are therefore central teaching strategy in this course.

Assessments

Assessment of your learning in the course will be achieved through two clinical skills assessments and one written report. These requirements are similar to those encountered when dealing with a client or patient in a face-to-face setting, or when communicating with other health professionals or researchers. The assessments

will be designed to determine how well you have achieved the general learning outcomes outlined above, and the specific learning outcomes outlined in each lecture/practical/tutorial. The clinical skills assessments will assess your ability to effectively communicate with and instruct clients or patients. The written report will assess your ability to access and interpret scientific literature and data in the field of exercise science, and to communicate concisely in a written report. You will be required to perform similar tasks in many professional settings within exercise physiology practice or medical research.

Summary of Assessments	Weight	Due Date
<i>ASSESSMENT TASK 1 – CLINICAL SKILLS ASSESSMENT 1 MOVEMENT INSTRUCTION</i>	20%	Week 6
<i>ASSESSMENT TASK 2 – CLINICAL SKILLS ASSESSMENT 2 MOVEMENT INSTRUCTION</i>	40%	Week 11
<i>ASSESSMENT TASK 3 – CLINICAL REPORT MOVEMENT ASSESSMENT</i>	40%	Week 13

Assessment Task 1 – Clinical Skills Assessment 1: Movement Instruction

This is a group assessment task. Students will work in groups of 3 to conduct a movement instruction session. One student will act as the movement instructor, one as the patient/client and the third student will observe and film the movement instruction session. Three different types of movement activities will be instructed. Students will switch roles for each movement activity, giving each student the opportunity to perform each role within the group. The instruction session should be of 5 minutes duration for each movement activity. The three movement activities selected for instruction will be:

1. An activity of daily living
2. A work task
3. An exercise

Upon completion of instruction and filming of all three movement activities, students will be required to annotate the video, giving commentary on their experience and observations during the movement instruction session. The annotated video file will be submitted for assessment as a group project.

Learning Outcomes for the Clinical Skills Assessment 1: Movement Instruction

- To develop your ability to effectively communicate information to clients and patients in training and rehabilitation programs
- To understanding the appropriateness and effectiveness of different teaching and feedback strategies for movement instruction

Marking criteria (often in a table)

Assessment Task 2 – Clinical Skills Assessment 2: Movement Instruction

This assessment task follows the same format as Assessment Task 1 - Clinical Skills Assessment 1: Movement Instruction. As for Assessment Task 1, you are required to work in groups of 3 to produce an annotated video of movement instruction of three different movement activities. The annotated video will be submitted as a group project for assessment.

Through repeat performance of a practical assessment task, you will get the opportunity to improve your competence in movement instruction, making the necessary adjustments and enhancements to your performance based upon feedback provided from Assessment Task 1.

Learning Outcomes for the Clinical Skills Assessment 2: Movement Instruction

- To develop your ability to effectively communicate information to clients and patients in training and rehabilitation programs
- To understanding the appropriateness and effectiveness of different teaching and feedback strategies for movement instruction

Marking criteria (often in a table)

Assessment Task 3 - Clinical Report – Movement Assessment

This assessment task will take the form of a written clinical report. This is an individual assessment task for which you will be required to provide a detailed analysis of a movement task. Analysis of the specified movement activity will contain both quantitative and qualitative components. A detailed exercise prescription document will also be required as part of this report.

Learning Outcomes for the Clinical Report – Movement Assessment

- To develop and apply skills and knowledge in advanced movement assessment
- To develop your ability to communicate effectively in the format of a written clinical report

Marking criteria (often in a table)

Submission of Assessment Tasks

Assignments are to be submitted electronically through Turnitin via Blackboard.

Penalties for late submission of assignments – In cases where an extension has NOT been granted, the following penalties will apply: For assignments submitted after **9:00am** on the due date, a penalty of 50% of the maximum marks available for that assignment will be incurred. A further 25% of the maximum possible allocated marks (i.e., a total of 75%) will be deducted from assignments which are two (2) days late. Assignments received more than two (2) days after the due date **will not be allocated a mark**, however, these assignments **must** still be submitted to pass the unit.

Academic honesty and plagiarism

Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft and is regarded by the university as academic misconduct. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. The Learning Centre can provide further information via <http://www.lc.unsw.edu/plagiarism>.

Course schedule – DRAFT TIMETABLE – SUBJECT TO CHANGE

Week	Date	Lecture 1 Location	Lecture 2 Location	Tutorial Location	Laboratory Location	Assessments Due
2	23 -27 Jul	L1 – Course Introduction & Overview	L2 – Biomechanics Review			
3	30 Jul - 3 Aug	L3 – Postural evaluation	L4 – Ergonomic assessment	Movement Instruction	Vhi Exercise Prescription Software	
4	6 - 10 Aug	L5 – Measuring physical activity 1	L6 – Measuring physical activity 2		MaxTRAQ software/Visual 3D	
5	13 - 17 Aug	L7 – Stages of Motor Learning	L8 – Feedback and Repetition in Motor Learning	Movement Instruction	Accelerometers	
6	20 - 24 Aug	L9 – Intrinsic and Extrinsic Feedback in Motor Learning	L10 – Styles of Verbal Cueing in Movement Instruction		Quantitative Movement Assessment - Motion Analysis Lab 1	Clinical Skills Assessment 1 due
7	27 -31 Aug	L11 – Collecting and analyzing kinematic data 1	L12 – Collecting and analyzing kinematic data 2	Qualitative Movement Assessment	Quantitative Movement Assessment - Motion Analysis Lab 2	
Mid-session break						
8	10 - 14 Sept	L13 – Collecting and analyzing kinetic data 3	L14 – Integrating kinematic and kinetic data – inverse dynamics		Data collection for assignments	
9	17 - 21 Sept	L15 – Matching exercises and assessments to tasks 1	L16 – Matching exercises and assessments to tasks 2	Movement Instruction	Data collection for assignments	
10	24 -28 Sept	L17 – Work task assessment 1	L18 – Work task assessment 2		Data collection for assignments	
11	1 -5 Oct	L19 – Activities of daily living assessment	L20 –Skill Acquisition and Biomechanics – Freezing and Freeing Degrees of Freedom	Qualitative Movement Assessment		Clinical Skills Assessment 2 due
12	8 -12 Oct	L21 - Memory, Attention and Perception in Skill Acquisition	L22 - Imagery and Visualisation in Skill Acquisition			
13	15 – 19 Oct	L23 – Setting Goals and Motivating in Movement Instruction	L24 – Course summary & review			Clinical Report Due

Resources for students

Blackboard

Information about the course and a number of electronic study resources can be accessed via the UNSW Blackboard system. Blackboard is an internet-based set of Course Tools designed to enable online learning. You can access the system from the following site:

<http://lms-blackboard.telt.unsw.edu.au/webapps/portal/frameset.jsp>

You can use Blackboard to download lecture notes, access your grades, find reference material in the course (such as this document), and communicate with the lecturer and your peers. Please see the lecturer if you would like more information to help you to make the most of this resource.

Lectopia

The Lectopia system (iLecture) provides digital audio recordings of lectures that can be accessed via streaming media over the web or as a podcast (if permitted by the lecturer). Lecture slides may be embedded in these presentations. <http://telt.unsw.edu.au/lectopia/content/default.cfm?ss=1>

UNSW Library

The University Library provides a range of services to assist students in understanding how to identify what information is required for assignments and projects; how to find the right information to support academic activities; and how to use the right information most effectively.

<http://www.library.unsw.edu.au>

Reserve

Many items (books and journal articles) set as recommended reading for courses will be located in Reserve, which is on Level 2 of the Main Library. Some of the journal articles will be available in electronic format via MyCourse. To search for these items, go to the library website catalogue and search for the course code.

Textbooks

Suggested Reference Books

Hamill, J. & Knutzen, K.M.(2009). *Biomechanical Basis of Human Movement, 3rd Edition*, Lippincott, Williams & Wilkins.

ISBN: 0781734053

Library call no. 612.76/177

Knudson, D. & Morrison, C.(2002). *Qualitative Analysis of Human Movement, 2nd Edition*, Human Kinetics,

ISBN: 0736034625

Library call no. 612.76/148 B

Griffiths, I. W. (2005). *Principles of Biomechanics and Motion Analysis*, Lippincott, Williams & Wilkins

ISBN: 978-0781752312

Library call no. 612.76/187

Suggested Reference Journals

Course evaluation and development

HESC2452 Movement Assessment and Instruction is offered for the first time in 2012 as part of the *Bachelor of Exercise Physiology*. It has been introduced with the aim of provided students with increased opportunity to integrate and consolidate their knowledge and practical skills in functional anatomy and biomechanics. The heavy weighting given to practical course assessments in movement assessment and instruction has been designed to align with the practical clinical skills requirements of the exercise physiology profession.

Student feedback is welcome and taken seriously. A Course and Teaching Evaluation and Improvement (CATEI) survey will be provided in the final weeks of the course to formally gather student feedback. The feedback received will be used to enhance all aspects of the course in its future delivery.

Occupational Health and Safety

Class activities must comply with the NSW Occupational Health & Safety Act 2000 and the Occupational Health & Safety (OHS) Regulations 2001. It is expected that students will conduct themselves in an appropriate and responsible manner in order not to breach OHS regulations. Further information on relevant OHS policies and expectations is outlined at: http://www.hr.unsw.edu.au/ohswc/ohs/ohs_policies.html

Examination procedures and attendance requirements

Attendance is expected at all lectures, practicals and tutorials for this course. Attendance at all practicals, tutorials and clinicals will be recorded. Students who do not participate in these sessions for any reason other than medical or misadventure, will be marked absent and will be awarded a grade of FAIL for the entire course. If absent for medical reasons, a medical certificate must be lodged with the lecturer within 7 days of the time period of the certificate's expiry. No consideration will be given after this time. Although lectures will be available on ilecture, student participation is encouraged in both the lectures and the tutorials and these are important to attend.

Deferred Exams

If you miss an exam for medical reasons you must supply adequate documentation (including a medical certificate). Your request for consideration will then be assessed and a deferred exam may be granted. You cannot assume you will be granted supplementary assessment. The deferred exam may include a significant oral element.

Special consideration in the event of illness or misadventure

Please note the following Statement regarding Special Consideration.

If you believe that your performance in a course, either during session or in an examination, has been adversely affected by sickness, misadventure, or other circumstances beyond your control, you should notify the Registrar and ask for special consideration in the determination of your results. Such requests should be made as soon as practicable after the problem occurs. **Applications made more than three working days after the relevant assessment will not be accepted except in TRULY exceptional circumstances.**

When submitting a request for special consideration you should provide all possible supporting evidence (eg medical certificates) together with your student number and enrolment details. Consideration request forms are available from Student Central in the Chancellery or can be downloaded from the web page linked below.

Note that normally, if you miss an exam (without medical reasons) you will be given an absent fail. If you arrive late for an exam no time extension will be granted. It is your responsibility to check timetables and ensure that you arrive on time.

Students who apply for consideration to Student Central must also contact the Course Convenor immediately.

All applications for Special Consideration will be processed in accordance with UNSW policy (see: <http://my.unsw.edu.au/student/atoz/SpecialConsideration.html>). If you miss an assessment and have applied for Special Consideration, this will be taken into account when your final grade is determined. You should note that marks derived from completed assessment tasks may be used as the primary basis for determining an overall mark. Where appropriate, supplementary examination may be offered, but only when warranted by the circumstances.

Student equity and diversity issues

Students requiring assistance are encouraged to discuss their needs with the course convenor prior to, or at the commencement of the course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (EADU) (9385 4734). Further information for students with disabilities is available at <http://www.studentequity.unsw.edu.au/disabil.html>