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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School of Medical Sciences
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 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

**Course philosophy and design** – This course commences with a series of lectures and laboratory activities focusing on advanced quantitative movement analysis techniques. These learning activities will progressively build on the biomechanical knowledge and skills you acquired through completion of Biomechanics for Health and Exercise Science (BIOM2451). With your aim as practitioners (clinicians) being to assist people with movement enhancement, the course then progresses with a series of lectures outlining the theories associated with motor learning and skill acquisition. This content will build on the elementary introduction to motor control and learning that was provided in Introduction to Exercise Science (HESC1501). These lectures will be supported by concurrent tutorials in which you will develop and practice your skills in movement instruction. The course concludes with a series of lectures and accompanying tutorials conveying the application of movement assessment and instruction skills to qualitative analysis of exercise and ergonomic tasks. Assessment strategies throughout the course require you to apply your skills in movement assessment and instruction to real-life examples.

**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** – 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 a 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.

<table>
<thead>
<tr>
<th>Summary of Assessments</th>
<th>Weight</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>ASSESSMENT TASK 1 – CLINICAL SKILLS ASSESSMENT 1 MOVEMENT INSTRUCTION</td>
<td>20%</td>
<td>Week 8 9am Monday 10 September</td>
</tr>
<tr>
<td>ASSESSMENT TASK 2 – CLINICAL SKILLS ASSESSMENT 2 MOVEMENT INSTRUCTION</td>
<td>40%</td>
<td>Week 12 9am Monday 8 October</td>
</tr>
<tr>
<td>ASSESSMENT TASK 3 – CLINICAL REPORT MOVEMENT ASSESSMENT</td>
<td>40%</td>
<td>Week 13 5pm Friday 19 October</td>
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Assessment Task 1 – Clinical Skills Assessment 1: Movement Instruction

Part 1
This task is conducted in groups, however each student will receive an individual assessment mark. Students will work in groups of 3 to conduct a movement instruction session. Three different types of movement activities will be instructed within each session. The three movement activities selected for instruction during each session will be:

1. An activity of daily living (ADL)
2. A workplace task
3. A therapeutic exercise

For instruction of each movement activity, one student will act as the movement instructor, one as the patient/client (learner) and the third student will video and observe the movement instruction session. Students will switch roles for each movement activity during the session, giving each student the opportunity to perform each role within the group. The instruction of each movement activity should be of 5 minutes duration, producing a total of 15 minutes of video data for each movement instruction session.

The video file will be submitted for assessment by uploading to Blackboard. Only one video file should be uploaded per group. Academic staff will observe the uploaded video to assess each student on their capability to instruct the selected movements.
Upon completion of filming the movement assessment session, students will be required to watch the video and complete some self-reflection and peer-review activities. Students will summarise their self-reflection on their own performance as the movement instructor, as well as provide peer-review of their group members’ performance as the movement instructor by discussing their experience and observations as the learner and videographer. The self-reflection and peer-review information will be provided in the form of written answers to specific questions for each role. Answers to these questions will be submitted by completing and uploading an Assignment Submission Template to Blackboard.

**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

**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 a video of movement instruction of three different movement activities. The video will be submitted for assessment. Self-reflection and peer-review activities will also be conducted by answering specific questions for each role.

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

**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

**Guidelines for Assessment Tasks**
Detailed guidelines and marking criteria for each assessment task will be provided to students via the “Assessments” section of Blackboard.

**Submission of Assessment Tasks**
Assignments are to be submitted electronically through Turnitin via Blackboard.

**Compulsory Submission of Items from Practical Laboratory Sessions**
In addition to the assessment tasks listed above, all students are required to complete and submit compulsory tasks from Lab 1, Lab 2 and Lab 3. The guidelines for completion of these items are outlined in the notes for each laboratory session. These tasks have been designed to be completed with the two (2) hour duration of each laboratory session. Each of these completed items must be submitted via Blackboard within one (1) week of the date of attendance at the laboratory practical session. It is compulsory for all students to submit
all required laboratory tasks in order to successfully complete the course. The class will receive general feedback on these items. The formative feedback provided for these tasks will assist in preparation of Assessment Task 3 - Clinical Report.

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.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture 1: Mon 5-6pm</th>
<th>Lecture 2: Thurs 1-2pm</th>
<th>Tutorial</th>
<th>Laboratory</th>
<th>Assessments Due</th>
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<tr>
<td>2</td>
<td>23-27 Jul</td>
<td>Biomed C</td>
<td>Civil Eng 101</td>
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<td>WW108 or 24 Arthur St</td>
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<td></td>
<td></td>
<td>L1: Course introduction &amp; overview (RW)</td>
<td>L2: Measuring physical activity (Accelerometry) (BB)</td>
<td></td>
<td>Lab 1: Physical Activity Assessment using Accelerometry (RW/DM/MJ) WW108/WW110</td>
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<td>5</td>
<td>13 - 17 Aug</td>
<td>L7: Defining and measuring motor learning and performance</td>
<td>L8: Stages of motor learning, including kinematic and EMG descriptors (RW)</td>
<td>T2: Qualitative Assessment and Movement Instruction (RW)</td>
<td>Lab 4: Quantitative Movement Assessment – Motion Analysis Lab 1 (RW/DM/MJ) 24 Arthur St</td>
<td>Lab 3 Compulsory Submission Items due</td>
</tr>
<tr>
<td>8</td>
<td>10 - 14 Sept</td>
<td>L13: Memory and perception in motor learning and skill acquisition (RW)</td>
<td>L14: Goals, motivation and attention in motor learning (RW)</td>
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<td>Lab 7: Data collection for Clinical Report (RW/DM/MJ) 24 Arthur St</td>
<td>Clinical Skills Assessment 1 due 9am Mon Sept 10</td>
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Mid-session break
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<td>9</td>
<td>17 - 21 Sept</td>
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<tr>
<td>11</td>
<td>1 -5 Oct</td>
<td>NO LECTURE - PUBLIC HOLIDAY</td>
<td>L19: Work specific exercise prescription (JB)</td>
<td>T5: Qualitative Assessment and Movement Instruction (RW)</td>
<td></td>
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</table>

RW: Rachel Ward  
BB: Ben Barry  
JB: John Booth  
DM: David Mizrahi  
MJ: Matthew Jones  

WW108: Walluce Wurth 108  
WW110: Walluce Wurth 110
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
Highly Recommended
ISBN: 978-0-495-01080-7
UNSW Library call no. 152.334/37

UNSW Library call no. 612.76/187

Suggested Reference Books
UNSW Library call no. 152.334/24

ISBN: 978-0-0735-2380-4
UNSW Library call no. 152.334/22

UNSW Library call no. 612.76/148

ISBN: 978-0-7817-9128-1
UNSW Library call no. 612.76/177
Suggested Reference Journals

Perceptual and Motor Skills

Motor Control

Journal of Motor Behaviour

Human Movement Science

Journal of Human Movement Studies

Journal of Applied Biomechanics

Sports Biomechanics

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