



Australia's
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Faculty of Medicine
School of Medical Sciences

DEPARTMENT OF EXERCISE PHYSIOLOGY

HESC3592

Neuromuscular Rehabilitation

COURSE OUTLINE

SEMESTER 2, 2017

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Please read this manual/outline in conjunction with the following pages on the [School of Medical Sciences website](#):

- [Advice for Students](#)
- [Learning Resources](#)

(or see "STUDENTS" tab at medicalsciences.med.unsw.edu.au)

Course details

Credit Points: 6 UOC

Course Pre-requisites:

ANAT2451 Functional Anatomy for Health and Exercise Science

BIOM2451 Biomechanics for Sports Scientists

NEUR3101 Muscle and Motor Control

Course Description

This course provides the opportunity for students to understand the potential and limitations of exercise as a tool for clinical rehabilitation in humans with neurological disorders. Specific information about a range of neuromuscular disorders is provided, and students are encouraged to apply their knowledge to case studies and scenarios in order to develop the scientific and clinical attributes necessary to contribute effectively to a neuromuscular rehabilitation team. This course offers a mixture of traditional and interactive/case study approaches to learning and includes a series of case method tutorials that emphasise the application of theory to clinical situations. These case method tutorials are designed as a bridge between the lifestyle change project with an apparently healthy client in HESC3504 and the year 4 clinical practicum courses in the workplace.

Objectives of the Course

1. To develop an appreciation for the role of exercise physiologists, and physical activity, for the prevention and management of neurological disease or injury and associated disability.
2. To nurture the communication skills required to liaise with medical and other allied-health professionals for a multi-disciplinary approach to health care.
3. To support knowledge and practical skills relevant to specific neurological disorders, and associated conditions, to allow the design and management of appropriate exercise interventions
4. To encourage students to access and evaluate the scientific and clinical evidence base for continued improvement of professional practice.

Student learning outcomes

HESC3592 will develop those attributes that the Faculty of Medicine has identified as important for an Exercise Physiology Graduate to attain. These include; skills, qualities, understanding and attitudes that promote lifelong learning that students should acquire during their university experience.

Graduate attributes

- Develop a thorough understanding of the relationship between physical activity and health
- Attain competencies in conducting a broad range of exercise-based clinical tests and in delivering lifestyle change programs that use exercise for the primary prevention of disease and the management of chronic disease
- Attain skills and detailed clinical knowledge relevant to cardiopulmonary, metabolic, musculoskeletal and neuromuscular rehabilitation
- Develop advanced problem solving skills and a capacity for critical thinking
- Develop an ability to engage in independent and reflective learning for the betterment of professional clinical practice
- Develop a broad range of communication skills and an ability to work as a member and a leader of a team, with respect for diversity and a high standard of ethical practice

On completion of this course students should:

1. Be able to communicate a mature understanding of the pathophysiology of a range of neuromuscular disorders at a level sufficient for effective communication with health care professionals.
2. Have an awareness of current and (potential) future neuromuscular rehabilitation approaches and an ability to perform independent research to address questions related to the field that may arise in your future professional activities.
3. Be competent in the administration and interpretation of basic functional, psychological, biomechanical or neurological tests relevant for patients undergoing neuromuscular rehabilitation.
4. Have the necessary skills and contextual knowledge to effectively interview and communicate with neurological patients.
5. Be able to deliver safe and effective exercise programs for patients with neuromuscular disorders.

Rationale for the Inclusion of Content and Teaching Approach

How the course relates to the Exercise Physiology profession

This course aims to provide holistic preparation for the management of exercise rehabilitation programs for patients with neurological and neuromuscular disorders. It emphasizes clinical assessments of motor function and the role of exercise physiologists in multidisciplinary teams working in neuromuscular rehabilitation.

How the course relates to other courses in the Exercise Physiology program

The course will build on your understanding of the role of the nervous system in the control of movement, as developed in Muscle and Motor Control (NEUR3101). It also draws heavily on your knowledge of biomechanics (BIOM2451 and HESC2452) and functional anatomy (ANAT2451) to apply knowledge in these areas to clinical cases. The case method tutorial component of this course is run in parallel with that of Movement Rehabilitation (HESC3232). The case-based focus of the course is designed as preparation for the 4th year clinical practicum, which includes placements working with people with neurological and neuromuscular disorders.

Approach to Learning and Teaching

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment which interests and challenges students. The teaching is designed to be engaging and relevant in order to prepare students for future careers.

Lectures – This approach is used to present relatively large amounts of information at a time on specific topics throughout the course. PDF copies of the lecture notes will USUALLY (some guest lecturers may choose not to make their notes available) be available on Moodle (see below in STUDENT RESOURCES section) prior to 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 is to help you to develop technical skills that will be important when dealing with patients who have neuromuscular and neurological conditions. It is important to obtain hands-on experience with basic neurological and functional testing as well as approaches to adapting exercises.

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.

Case Study Tutorials – The case study tutorial (CST) is an active learning approach involving student centred activities that demonstrate theoretical concepts in an applied setting. This approach is designed to not only enhance your learning experience but also to increase your engagement in learning. Case study tutorials allow students to apply theoretical concepts, thus bridging the gap between theory and practice. All students will be required to come prepared for each of the 4 CST's and to contribute to the discussion by reading the case study and associated questions provided in the weeks prior to the tutorial. Some students will be designated 'warm callers' prior to the CST. Warm callers will/may be asked to initiate the discussion at various points – e.g.: provide a summary of Mrs X's symptoms; are there any contraindications to Mrs X increasing her activity levels?; please summarise Mrs X's previous treatment history, etc. All other students can receive a 'cold call' at any time during the tutorial and provide an answer to a question or issue being discussed and debated. The assessment of each CST will involve a participation component and hence unprepared students risk poor grading and, worse still, a less than optimal learning experience. A CST learning format is highly relevant to professional development and competencies as it exposes students to issues relevant to Exercise Physiologists in clinical practice. Case studies also provide an opportunity for the development of key skills including communication, group work and problem solving and provide a motivating and enjoyable learning experience. The case study tutorials in HESC3592 are an important simulated learning environment in the exercise physiology program and contribute 20 hours towards the 500 hours of clinical placement that is required for professional accreditation.

Independent study – There is insufficient time in the lectures, tutorials and practical 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 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.

Learning activities occur on the following days and times:

- Lectures: 23
- Tutorials: 4
- Practicals: 9

Students are expected to attend all scheduled activities for their full duration (2 or 3 hours of lectures per week, and up to 4 hours of practical and/or tutorial sessions per week). Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities. The formal learning activities are approximately 75 hours throughout the semester and students are expected (and strongly recommended) to do at least the same number of hours of additional study

Assessments

Assessment of your learning in the course will be achieved through examinations (oral viva, clinical skills and multiple choice questions), participation in case study tutorials, and the completion of clinical reports and exercise programs arising from the case study tutorials. The examination format tests your ability to apply and communicate knowledge on the management of neuromuscular disorders in a time-constrained context. These requirements are similar to those encountered when dealing with a client or patient in a face-to-face setting, communicating with a clinician or colleague, or during a job interview. The examinations will be designed to determine how well you have achieved the general learning outcomes that are outlined above, and the specific learning outcomes outlined in each lecture/practical/tutorial. The emphasis will be on the clinical application of theoretical knowledge. The case studies will be concerned with developing your clinical reasoning skills with detailed management plans for patients with specific neuromuscular disorders. The majority of assessment for the case study tutorials is completed as individuals, there is a small component allocated to team work and also to peer assessment. This is to encourage sharing of ideas and knowledge as well as critical analysis of patient management plans.

Summary of Assessments	% Total Marks	Due Date
ASSESSMENT TASK 1 - CASE STUDY TUTORIAL (CST) PARTICIPATION AND REPORT (submitted for 2 case studies from the 4 case study tutorials in the course scheduled in weeks 5, 7, 9, 11)	40% [participation 10% written report 10% X 2]	weeks 6,8,10,12 Monday 9am
ASSESSMENT TASK 2 - CLINICAL VIVA & SKILLS ASSESSMENT	30%	Exam period
ASSESSMENT TASK 3 - END OF SESSION EXAMINATION	30%	Exam period

Assessment - detailed breakdown

Item	Grade %	Date	Feedback
Case study tutorials (each of the 4 CSTs will involve one of the following 4 items) A – Participation by active groups B – Participation by active groups <i>(participation: individual 90% and team 10%, judged by an academic observer, a group of peer observers and team mates)</i> C – Written report to referring health professional D – Exercise program (Reports and exercise programs are submitted by individuals who were in the passive groups for the relevant case study tutorial. In a given week, approximately half of the teams will submit a report and the other half an exercise program. This will be switched for the second round of written submissions.)	10% 10% 10% 10%	Weeks 5, 7, 9, 11 Reports or programs due at the start of the week following the CST.	Participation marks are submitted at the end of each CST and collated grades appear on Moodle within 1 week of the CST. You will also be able to discuss your participation in CSTs with the academic marker and session facilitator. Grades and comments on the clinician reports or exercise programs will generally appear on Moodle a week following submission.
Clinical viva and skills assessment Patient assessment - knowledge Clinical tests and exercise prescription - clinical skills <i>(15% Procedural skills & 5% Communication skills)</i> Patient management - clinical reasoning	5% 20% 5%	Exam period	Marks available on release of course final results with feedback available on Moodle.
End of session examination Multiple choice questions	30%	Exam period	On release of course final results.

ASSESSMENT TASK 1 - Case Study Tutorial Participation and Report

Overview

There is considerable educational research demonstrating the efficacy of actively involving students in the learning process. A case study tutorial (CST; aka case method tutorial) is an active learning strategy that is being implemented at UNSW Medicine. A CST is an interactive learning activity with the emphasis on student-centred as opposed to teacher-centred learning. This approach has been linked with increased student interest and motivation and permits better application of theoretical content to clinical practice. The CST format is also beneficial for encouraging key skills, including group work, communication and presentation skills, problem solving, independent research, critical thinking and analysis and time management. For training practitioners, the CST provides an ideal format for developing their clinical reasoning and decision making skills.

Format

1. Students will be placed in a group of between 4 and 6 people and remain in their group for all 4 weeks of case studies. In each CST, 4 to 6 groups will be actively involved in the discussion, with the remaining groups being passive. Students will generally be made aware which groups are active or passive before the day of the CST.
2. CST preparation will require students to carefully read a detailed case study and the required readings before the CST. The case study abstract is followed by questions, which students must address thoroughly to permit them to make a meaningful contribution to the discussion/debate. Thorough preparation will require within group collaboration.
3. During the CST, students will be required to wear name badges at least 10 cm x 4 cm to assist the convenor to engage individual students in the discussion.
4. Throughout the CST only 2 of the active groups will usually be involved at any one time in the discussion. The discussion will focus on primary aspects of clinical practice: exploration: "what's going on", analysis: "why is this happening" and decision making: "what to do, how to manage". All groups must be competent with discussing all aspects of the CST. The primary areas for discussion are:

Patient history: previous and current treatment, level of activity/function, yellow or red flags, beliefs about their condition, medication, self-management and coping, aggravating and relieving factors, etc.

Patient screening and self-reporting: self-perceived level of function and quality of life, psychosocial factors, beliefs and behaviours about physical activity; access to services and support, goals, etc.

Physical Assessment: motor impairments, cognitive or other impairments, fitness, function, movement capabilities, movement requirements to meet patient goals, etc.

Exercise Prescription/Treatment Plan: Goal setting, appropriate exercise modalities, frequency duration and intensity, treatment approach, establishing exercise quota, exercise progression or regression at beginning mid and end program, problem solving difficulties.

5. The CST will commence with the convenor nominating individuals or groups to introduce the case and engage in the first phase of the discussion. At the completion of each phase of the discussion the convenor will nominate other groups to lead further discussion. Groups can be called on to contribute at any time during the CST. A flow chart detailing the key findings of the CST may be mapped on a whiteboard during the CST.
6. The final stage in the CST is reviewing and reflecting on the key findings and clinical implications of the case study. During a CST, it is the role of the students to explore the critical issues relating to clinical practice with guidance by the facilitator!

Assessment

Each student's contribution during the CST will be assessed by an academic and their peers (students from the corresponding passive group). The depth and relevance of each individual's contribution, and the mark allocated for participation, will depend on the level of preparation prior to the CST. Consequently, it is important that each member of the group is well prepared and a coordinated effort by each group will be required to ensure this is the case. The within group peer assessment will be completed after submission of the CST report using paper or online score sheets. The marking criteria for the participation and the case study report are detailed in the course outline.

Possible Pitfalls with Case Study Tutorials

1. Late attendance by group members impacting on their contribution
2. Poor individual and group contribution to a CST through inadequate preparation, resulting in a low grading for participation
3. Simple repetition or lack of respect and/or acknowledgement of ideas presented by other group and team members
4. Low grading for the CST report or exercise program through poor understanding of the critical issues debated and discussed during the CST

Context of Case Study Tutorials in the Bachelor of Exercise Physiology

Case study tutorials were introduced to the Bachelor of Exercise Physiology in 2010 as a component of the two third year clinical courses: HESC3532 Movement Rehabilitation and HESC3592 Neuromuscular Rehabilitation. Both courses are offered in semester 2 and provide an important bridge between predominantly classroom-based learning across year 1 to 3 of the program and clinical placements in the workplace in year 4 of the program. The development of clinical reasoning and teamwork skills are a key focus of the case study tutorials.

How are they conducted

The case study tutorials are conducted in 90-minute sessions in the same timeslots for HESC3532 and HESC3592, with 4 case study tutorials for each course interleaved across 8 weeks.

60 – 85 students are enrolled in the course, with half of the class active in each session and the other half observing – and marking participation by the active students. To accommodate growing class sizes, additional classroom sessions are run to restrict the number of active participants in a session to fewer than 25 students per class.

Students work in groups of 4 to 6 for each case study and across the series of 8 cases (for HESC3532 and HESC3592 combined) each student is active for 4 cases and observes 4 cases. The sessions are facilitated by an academic staff member, who is sometimes supported by an accompanying clinical expert – often from a different health profession. An additional academic staff member is present as an observer for each session to also mark participation by groups. Hence, there is peer and academic evaluation of participation. Case study tutorials comprise 40% of the assessment for each course, with 10% for each of 2 written reports and 10% for participation in each of 2 sessions.

For HESC3592, CSTs encompass participation in the case study tutorials for 2 case studies and a written report or exercise program for the remaining 2 cases. For each case study the class will be halved into an active and passive group and all students will require a 12 cm x 6cm name tag. Students in the active group will contribute to the CST as part of their team of 4 - 5 students. The CST teams will be assigned by week 3 of the course and these teams will persist for all 4 case

study tutorials. Each individual in a team will be marked by academic observer and also by student teams in the passive group. Adequate contribution by each individual and group will require a high level of preparation. Each individual in the passive group will be required to submit either a report to the referring health practitioner or an exercise program for the patient for each of the 2 case studies.

Learning Outcomes

- To display understanding of exercise physiology clinical practices for patients with neuromuscular and neurological disorders
- To identify the role of other health professionals in multidisciplinary and interdisciplinary care
- To display clinical reasoning skills for managing patients with neuromuscular and neurological disorders
- To integrate information from the evidence base
- To communicate effectively in oral and written form in the context of clinical practice
- To work as a member of a team and be capable of assessing peer performance

Schedule for CSTs

CST schedule for Active and Passive groups including the schedule for handing in CST reports are found at the end of this document.

Marking Criteria

Case Study Tutorial Participation - Students will contribute to the case study tutorial as part of a group. Each students' participation in the case study tutorial session will be assessed by their peers (i.e. the passive observer groups) and academic staff. The average of these marks will be calculated for each individual student. The academic observer provides a mark for each individual student (50%). The passive observers submit a group consensus mark for individual student (50%) in the active group that they are assigned to mark. This individual mark will constitute 90% of the participation mark and the remaining 10% will be based on your contribution to your own group's performance as assessed by peers within your group. Consequently, it is important that each member of the group is well prepared and that preparation involves a coordinated effort by each group.

Marking criteria for participation and contribution in the case study tutorial:

Outstanding Contributor (10%)	Contributions in class reflect exceptional preparation. Ideas offered are always substantive; provide one or more major insights as well as direction for the class. Challenges are well substantiated and persuasively presented. If this individual or group were not active, the quality of discussion would be diminished markedly.
Good Contributor (8%)	Contributions in class reflect thorough preparation. Ideas offered are usually substantive; provide good insights and sometimes direction for the class. Challenges are well substantiated and often persuasive. If this individual or group were not active, the quality of discussion would be diminished.
Adequate Contributor (6%)	Contributions in class reflect satisfactory preparation. Ideas offered are sometimes substantive, provide generally useful insights but seldom offer a new direction for the discussion. Challenges are sometimes presented, fairly well substantiated, and are sometimes persuasive. If this individual or group were not active, the quality of discussion would be diminished somewhat.
Unsatisfactory Contributor (4%)	Contributions in class reflect inadequate preparation. Ideas offered are seldom substantive; provide few if any insights and never a constructive direction for the class. Integrative comments and effective challenges are absent. If this individual or group were not active, it would have little impact on the learning outcomes.
Non-Participant (2%)	This group or individual has made minimal contribution during the case study. If this individual or group was not in attendance, it would make no difference to the learning outcomes

Marking Sheet found at the end of this document.

Case Study Tutorial Report and Exercise Program - In the week following the case study tutorial, each individual from the passive groups is required to submit one of the following: 1) a written report, in the form of a letter to the patient's physician, or other referring health professional or case manager, or 2) an exercise program in a suitable form to guide the patient and for clinician record keeping. With each class member being in a passive group for 2 of the 4 case study tutorials, a written report will be submitted for 1 case study tutorial and an exercise program will be submitted for the other case study tutorial.

Marking criteria for the clinician report on the case study tutorial

Components	Inadequate (1-4%)	Okay (5 - 6%)	Good (7 - 8%)	Great (9 - 10%)
Understanding/ Conceptualisation of the patient's condition	demonstrates little understanding of the primary issues for the patient highlighted during the CST	demonstrates limited understanding of the primary issues for the patient highlighted during the CST	demonstrates adequate understanding of the primary issues for the patient highlighted during the CST	demonstrates thorough understanding of the primary issues for the patient highlighted during the CST
Opinion on management approach	unclear, inconcise, illogical and inadequately constructed opinion with little relevance to the CST	vague and poorly constructed opinion with poor logic and insufficient relevance to the CST	adequately constructed and logical opinion relevant to the CST	very well constructed opinion and logic relevant to the CST
Quality of the writing and presentation	poorly written and organised; frequent spelling or grammatical errors; does not adhere to the required format (esp. length)	inadequate clarity of writing and organisation; minimal errors in written expression; follows the required format (esp. length)	clearly written, concise and well organised; few errors in written expression; adheres to the required format (esp. length)	clear, fluent, concise and well organised writing; no errors in written expression; adheres to the required format (esp. length)
Terminology appropriate to the discipline	little or no use of the relevant medical terminology	some use of the relevant medical terminology	suitable use of the relevant medical terminology	refined use of the relevant medical terminology

Key marking considerations for the clinician reports

1. Is the clinician report suitably brief?
2. Does the clinician report avoid needless repetition of background case details that would be known by the referring health practitioner?
3. Does the clinician report offer relevant information from an EP (e.g. functional assessment outcomes, goals, treatment plan)?
4. Is the clinician report presented in a professional format and with professional language?
5. Does the clinician report indicate insight regarding the key issues with the case?

Marking criteria for the exercise program for the case study tutorial patient

Components	Inadequate (1-4%)	Okay (5 - 6%)	Good (7 - 8%)	Great (9 - 10%)
Suitability of the exercise prescription – <u>commencement</u>	Inappropriate exercise prescription that may be ineffective and/or unsafe	Safe and somewhat effective exercises, but lacking attention to patient presentation (individualisation) and exercise adherence	Safe and effective exercises, with reasonable attention to patient presentation (individualisation) and exercise adherence	Safe and effective exercises, with specific attention to patient presentation (individualisation) and exercise adherence
Suitability of the exercise prescription – <u>progression</u>	Inappropriate exercise progression that may be ineffective and/or unsafe	Safe and somewhat effective exercise progression, but lacking attention to patient presentation (individualisation) and exercise adherence	Safe and effective exercise progression, with reasonable attention to patient presentation (individualisation) and exercise adherence	Safe and effective exercise progression, with specific attention to patient presentation (individualisation) and exercise adherence
Clarity of the presentation for the patient and professional colleagues	Poorly presented program, that will be difficult for the patient and/or professional colleagues to follow	Adequately presented program though may be difficult for the patient and/or professional colleagues to follow	Neatly presented program that can be readily followed by the patient and professional colleagues	High quality presentation of a program that can be easily followed by the patient and professional colleagues
Evidence of research and/or originality in the exercise prescription	No attention to the evidence base nor originality in thinking for the exercise prescription	Limited evidence base and/or original thought for the exercise prescription	Mostly evidence-based, possibly with some original thought in the program design	Clearly evidence-based and with original thought in the program design

Key marking considerations for the exercise programs

Presentation:

- Is the exercise program presented neatly and clearly in 1 to 3 pages?
- Is there detail of the patient and clinician, and the treatment goals?
- Is the program noted as being home-based or clinic-based or gym-based?
- Are illustrations or written descriptions included to explain exercises?

Suitability:

- Is the program matched to the stated or implicit goals?
- Does the selection of exercises adequately address these goals?
- Does the selection of exercises present a suitable initial challenge?
- Are the selected exercises suitably progressed?

Other details

- Is the program noted as being home-based or clinic-based / gym-based?

BE SURE TO OUTLINE EXERCISES THAT WILL BE PERFORMED AT 3 DIFFERENT STAGES OF TRAINING (E.G. WEEK 1, WEEK 6 AND WEEK 12 OR MONTH 1, MONTH 3 AND MONTH 6, ETC.)

Please note that while the CST assessments and requirements are replicated almost exactly across HESC3592 and HESC3532 the requirements for formatting and inclusion of the exercise programs may be more specific for HESC3532 Movement Rehabilitation (e.g. a strict 1 page limit and precisely specified weeks for the exercise program).

ASSESSMENT TASK 2 - Clinical Viva & Skills Assessment

The purpose of the practical assessment is to assess your competency with the practical application of the knowledge and skills covered in the unit. The assessment will be undertaken in pairs and encompass material presented in the CSTs, laboratories, lectures and readings. This will involve a 40-minute oral and skills assessment specific to daily clinical practice in rehabilitation. The oral assessment will involve verbal responses to questions posed by the examiner(s). The clinical skills demonstration will be performed on your partner and involves a physical assessment and an exercise prescription commonly used by exercise physiologists in rehabilitation settings. Each student will complete a single case study, randomly selected from a bank of cases, with ~10 min, 20 min, 10 min, respectively, for the 3 components of each case (i.e. patient assessment/appraisal, clinical tests and exercise prescription, and clinical reasoning). Before commencing the assessment, students will be given 10 minutes to read the selected case study and consider the specific questions and skills that will to be assessed.

Learning Outcomes

- To demonstrate detailed knowledge of the neuromuscular and neurological disorders covered in this course, in particular the functional limitations of patients with these conditions and the role of physical activity in managing these conditions
- To perform clinical procedures for assessment and exercise prescription for patients with neuromuscular and neurological disorders
- To communicate effectively in oral form with patients and other healthcare professionals

Marking Criteria

Assessment component	Grade
Patient assessment / appraisal – knowledge Provided correct and complete responses to the questions Partially answered the questions Inadequate response to the questions	5% 4 - 5% 2 - 3% <2%
Clinical tests and exercise prescription - clinical skills <i>Procedural</i> Demonstrated the required techniques with competency and a strong application to clinical practice Demonstrated the required techniques with confidence and moderate application to clinical practice Demonstrated the required techniques poorly with little application to clinical practice <i>Communication</i> High level of communication and interpersonal skills demonstrated Adequate communication and interpersonal skills demonstrated Poor communication and interpersonal skills demonstrated	20% 15% 11 - 15% 5 - 10% 0 - 4% 5% 5% 3- 4% 0 - 2%
Patient management - clinical reasoning High level of clinical reasoning, knowledge and understanding demonstrated Medium level of clinical reasoning, knowledge and understanding demonstrated Low level of clinical reasoning, knowledge and understanding demonstrated	5% 4 - 5% 2 - 3% <2%

ASSESSMENT TASK 3 - End of Session Examination

The purpose of this exam is to test your recall and understanding of the concepts covered in the ENTIRE COURSE. The format will be multiple choice questions. The exam will be held during the end of session exam period.

Learning Outcomes

- To demonstrate detailed knowledge of the neuromuscular and neurological disorders, and associated conditions (e.g. ageing, mental health), covered in this course. This includes:
 - Pathophysiology, prognosis and prevalence
 - Treatment provided by other health care professionals (e.g. surgical, medical, other allied health)
- To demonstrate a comprehensive understanding of the role of physical activity and exercise in the neuromuscular and neurological disorders, and associated conditions (e.g. ageing, mental health), covered in this course. This includes:
 - The evidence base for exercise interventions
 - Suitable approaches to exercise prescription
 - Suitable assessments

Submission of Assessment Tasks

Written assessment tasks must be handed in via Turn-it-in which can be found on the Moodle website. Each assessment task is due at various times of the week throughout the semester. Please make sure you are aware of these times. Penalties apply for late submissions.

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. Please see this link for more information: student.unsw.edu.au/conduct

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:** student.unsw.edu.au/plagiarism

Resources for Students

Moodle

Information about the course as well as lecture, tutorial and lab notes can be accessed via the UNSW Moodle system from the following site: <https://moodle.telt.unsw.edu.au/login/index.php>
You can use Moodle 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.

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. Homepage: <http://info.library.unsw.edu.au>

UNSW Learning Centre

The Learning Centre offers academic skills support to all students across all years of study enrolled at UNSW. This includes assistance to improve writing skills and approaches to teamwork. See www.lc.unsw.edu.au

Suggested Reference Books

- ACSM's resources for clinical exercise physiology: musculoskeletal, neuromuscular, neoplastic, immunologic, and hematologic conditions (2nd Ed). Editors, Jonathan N. Myers, William Herbert, Reed Humphrey. Philadelphia: Lippincott Williams & Wilkins, 2010.
- Motor Control: Translating research into clinical practice (4th Ed). Shumway-Cook and Woollacott. Philadelphia: Lippincott Williams and Wilkins, 2011.
- Exercise in rehabilitation medicine (2nd Ed.). Editor-in-chief Walter R. Frontera, Associate Editors David M. Dawson, David M. Slovik. Champaign, Ill: Human Kinetics, 2006.
- Neurorehabilitation for the physical therapist assistant. Edited by Darcy Umphred, Connie Carlson. Thorofare, NJ: SLACK, 2006.
- Neuromechanics of human movement (5th ed.). Roger M. Enoka. Champaign IL: Human Kinetics, 2015. ISBN-13: 9781450458801
- DeLisa's physical medicine and rehabilitation: principles and practice (5th ed). Editor-in- chief: Walter Frontera; Editors: Bruce M. Gans, Nicolas E. Walsh, Lawrence R. Robinson. Philadelphia: Lippincott Williams & Wilkins, 2010. Vol. 1 and Vol 2. ISBN 978-0-7817-9819-8 (hardback).

Suggested Reference Journals

- *Archives of Physical Medicine and Rehabilitation*
- *Annals of Physical and Rehabilitation Medicine*
- *Neurorehabilitation and Neural Repair*
- *American Journal of Physical and Rehabilitation*
- *Clinical Rehabilitation*
- *Journal of Rehabilitation Medicine*
- *Journal of Rehabilitation*
- *Journal of Rehabilitation Research and Development*
- *Stroke*
- *Topics in Stroke Rehabilitation*
- *The Journals of Gerontology Series A: Biological and Medical Sciences*
- *Journal of Ageing and Physical Activity*
- *Physical Therapy*
- *Brain*
- *Journal of Neurology*
- *Journal of Neurology, Neurosurgery and Psychiatry*
- *Neurosurgery and Psychiatry*
- *Annals of Neurology*
- *Progress in Neurobiology*
- *Clinical Biomechanics*
- *Patient Education and Counseling*
- *Developmental Medicine and Child Neurology*
- *Pediatric Exercise Science*
- *Journal of Clinical Psychiatry*
- *Quality of Life Research*
- *Disability and Rehabilitation*

General Information

Official Communication

All communication will be via your official UNSW email, please see [Advice for Student- Official Communication](#) for more details.

Attendance Requirements

Attendance is expected at all lectures, practicals, tutorials and examinations for this course. Attendance at all practicals, tutorials and examinations will be recorded. Students who do not participate in these sessions for any reason other than medical or misadventure, will be marked absent and may 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 except for truly exceptional circumstances. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance. Although lectures will be available via UNSW Lecture Recordings+, student participation is encouraged in the lectures and these are important to attend.

For additional details on the UNSW Policy on Class Attendance and Absence see [Policy on Class Attendance and Absence](#).

Guidelines on extra-curricular activities affecting attendance can be found on the School of Medical sciences Website at <https://medicalsciences.med.unsw.edu.au/students/undergraduate/advice-students#Special%20Consideration> _

Special Consideration

Please see [UNSW-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 ask for special consideration in the determination of your results. Such requests should be made by lodging an application with UNSW Student Central 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.**

If you unavoidably miss an assessment task, you must lodge an application with UNSW Student Central for special consideration. Your application must include a medical certificate or other relevant documentation. If your request for consideration is granted an alternative assessment will be organised which may take the form of a supplementary exam, increased weighting of the final exam, or an oral element. You cannot assume you will be granted supplementary assessment.

For the UNSW assessment information and policy, see:

<https://my.unsw.edu.au/student/academiclife/assessment/AssessmentPolicyNew.html>

<https://student.unsw.edu.au/assessment>

Health and Safety

Class activities must comply with the NSW *Work Health and Safety Act 2011*, the *Work Health and Safety Regulation 2011*, and other relevant legislation and industry standards. It is expected that students will conduct themselves in an appropriate and responsible manner in order not to breach HS regulations and ensure a safe work/study environment for themselves and others. Further information on relevant HS policies and expectations is outlined at: www.safety.unsw.edu.au

Student Conduct

All students must accept their shared responsibility for maintaining a safe, harmonious and tolerant University environment. For further information see www.student.unsw.edu.au/conduct

Student Support Services

Details of the available student support services can be found at [Educational Support Services](#).
Details of counselling support services can be found at [Counselling and Psychological Services](#).

Appeal Procedures

Details can be found at [Student Complaints and Appeals](#)

Course Evaluation and Development

Each year feedback is sought from students about the course and continual improvements are made based on this feedback. The Course and Teaching Evaluation and Improvement (MyExperience) Process of UNSW is the way in which student feedback is evaluated and significant changes to the course will be communicated to subsequent cohorts of students.

Student feedback is welcome and taken seriously. The MyExperience 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.

COURSE TIMETABLE

Week	Dates	Lectures		Case Study Tutorials		Laboratories / Practicals
		Tuesday 11am-12pm Weeks 1 – 12 WW LG03	Tuesday 12-1pm Weeks 1 – 12 WW LG03	Classroom Thursday 3- 4.30pm Mat 106	Classroom Thursday 4:30 – 6pm CLB 1	Monday 2 - 4 or Monday 4 - 6 or Wednesday 9 - 11 or Thursday 9 - 11 Wallace Wurth G16 hybrid lab (wks 2, 6) UNSW Fitness & Aquatic Centre pool (wk 8) Wallace Wurth Ex Phys Clin Teach (wks 3, 4, 7, 9, 11) Clinical Gait Analysis Lab NeurA (wk 5)
1	24-28 Jul	L1 – Course introduction & overview (incl. spinal cord injury case study and the notion and impact of motor impairment) RA 1/NK 1	L2 – Functional capacity and neuromuscular changes with ageing and disease NK 2			
2	31 - 4 Aug	L3 – Exercise modalities and modifications for neuro rehab: hydrotherapy, technology & evaluating evidence for practice KM	L4 – Exercise rehabilitation for Parkinson’s disease and motor neurone disease (degenerative conditions) RA 2 <i>Accompanying online activity on Medical and surgical management of Parkinson’s Disease</i>			Lab 1 – Exercise program and report writing workshop (incl. VHI software) <i>(Wallace Wurth G16 Hybrid lab)</i> MC (Mon, Wed), HQ (Thurs), NK Course introduction & teamwork
3	7 - 11 Aug	L5 – Exercise rehabilitation for acquired brain injury and cerebral palsy (traumatic conditions) NK 3	L6 – Clinical gait analysis RW			Lab 2 – Exercise prescription and monitoring <i>(Wallace Wurth Ex Phys Clinical Teaching area)</i> MC (Mon, Wed), HQ (Thurs), NK

4	14-18 Aug	L7 – Falls & Balance assessment SL	L8 – Falls prevention - exercise prescription considerations DS			Lab 3 – Falls risk, balance and mobility assessment <i>(Wallace Wurth Ex Phys Clinical Teaching area)</i> MC (Mon, Wed), HQ (Thurs), NK
5	21-25 Aug	L9 – Peripheral neuropathy and exercise rehabilitation MM	L10 – Multiple sclerosis (MS): medical management + exercise overview NK 4	Parkinson's Disease AC Participation marker: MC/NK	Multiple sclerosis AC Participation marker: MC/NK	Lab 4 – Clinical gait analysis – data collection <i>(Clinical Gait Analysis Laboratory at NeuRA)</i> MC (Mon, Wed), HQ (Thurs), NK, RW
6	28 Aug – 1 Sep	L11 –Dementia: overview, communication and exercise JC	L12 – Stroke and exercise rehabilitation PM*			Lab 5 – Clinical gait analysis – data analysis and report preparation <i>(Wallace Wurth G16 Hybrid lab)</i> MC (Mon, Wed), HQ (Thurs), NK RW
7	4-8 Sep	L13 – Role of the EP in neuromuscular rehabilitation MB	L14 – Chronic fatigue syndrome and graded exercise therapy – fatigue as a common symptom of NMD SC	Ageing & dementia NK Participation marker: RA/MC	Ageing & dementia NK Participation marker: RA/MC	Lab 6 – Functional assessments and clinical scales <i>(Wallace Wurth Ex Phys Clinical Teaching area)</i> MC (Mon, Wed), HQ (Thurs), NK
8	11–15 Sep	NO LECTURE 15 USUAL MONDAY 4-6PM LAB group will be doing Hydrotherapy Lab during this time (11-1pm).	L16 ONLINE ONLY Exercise management of fibromyalgia, osteoarthritis and CRPS – pain as a common symptom of NMD MJ			Lab 7 –Hydrotherapy <i>(UNSW Fitness & Aquatic Centre pool)</i> KM, MC (Mon, Wed), HQ (Thurs), NK *usual Monday 2-4pm group will be on will instead run from 1-3pm AND usual Monday 4-6pm group will be on Tuesday 11am-1pm.

9	18 - 22 Sep	L17 – Spinal cord injury and exercise CJ	L18 – Services in an EP led neurorehab clinic CJ	Stroke AC Participation marker: MC/NK	Stroke AC Participation marker: MC/NK	Lab 8 – Adapting exercises and using technology <i>(Wallace Wurth Ex Phys Clinical Teaching area)</i> MC (Mon, Wed), HQ (Thurs), NK
Mid-session break						
10	3 - 6 Oct	L19 – Mental health overview – psychosis, depression, anxiety disorder, etc. SR	L20 – Management of mental health with exercise (psychosis, PTSD, depression) OL			
11	9 - 13 Oct	L21 – Social Aspects of Disability RK	L22 – Neuroplasticity: overview of the physiology and applications to exercise and stimulation techniques WH	Psychosis & Depression OL Participation marker: AC/NK	Complex regional pain syndrome (CRPS) MJ Participation marker: AC /NK	Lab 9 – Exercise interventions for fatigue and pain <i>(Wallace Wurth Ex Phys Clinical Teaching area)</i> MC (Mon, Wed), HQ (Thurs), NK
12	16-20 Oct	L23 – Stretching to prevent injury and to prevent and treat contracture RH	L24 – Effects of mechanical loads on the nervous system: spinal cord injury and traumatic brain injury LB			
13	23-27 Oct					

AC: Aidan Cashin
BC: Briana Clifford
CJ: Claudia James
DM: David Mizrahi
DS: Daina Sturnieks

HQ: Hassan Qureshi
JC: Jacqueline Close
KM: Kelly McLeod
LB: Lynne Bilston
MB: Martin Bending

MC: Muneeba Chaudhry
MJ: Matthew Jones
MM: Matthew McCrary
NK: Natalie Kwai
OL: Oscar Lederman

PH: Phu Hoang
PM: Penelope McNulty
RH: Rob Herbert
RK: Rosemary Kayess
RW: Rachel Ward

SC: Sally Casson
SL: Stephen Lord
SR: Simon Rosenbaum
***TBD**

SCHEDULE FOR CASE STUDY TUTORIAL 1 of 2: CLASS SCHEDULE

Case study tutorial session	Thursday 3-4.30PM Mathews 106		Thursday 4.30pm-6PM CLB1		Week	Date	Topic
	Group A (Teams 1, 2, 3, 4, 5)	Group B (Teams 1, 2, 3, 4, 5)	Group A (Teams 1, 2, 3, 4, 5)	Group B (Teams 1, 2, 3, 4, 5)			
1	passive (marker)	active			5	Thursday 24 th August	Parkinson's disease
			passive (marker)	active		Thursday 24 th August	Multiple sclerosis
2	active	passive (marker)			7	Thursday 7 th September	Ageing & Dementia 1
			active	passive (marker)		Thursday 7 th September	Ageing & Dementia 2
3	passive (marker)	active			9	Thursday 21 st September	Stroke
			passive (marker)	active		Thursday 21 st September	Stroke
4	active	passive (marker)			11	Thursday 12 th October	Psychosis & Anxiety
			active	passive (marker)		Thursday 12 th October	Complex Regional Pain Syndrome

Passive (marker) groups will act as markers for the active groups and are required to submit a written report as per the schedule on the next page.

SCHEDULE FOR CASE STUDY TUTORIAL 2 of 2: SCHEDULE FOR SUBMISSION OF WRITTEN CST REPORTS

(i.e. submission of Exercise Programs or Clinician Reports)

Please take note of the topic on which your Exercise Program or Clinician Report is required to address.

Case study tutorial session	Thursday 3-4.30pm Mathews 106		Thursday 4.30-6pm CLB 1		Week	Due Date	Topic
	Group A (Teams 1, 2, 3, 4, 5)	Group B (Teams 1, 2, 3, 4, 5)	Group A (Teams 1, 2, 3, 4, 5)	Group B (Teams 1, 2, 3, 4, 5)			
1	Report: 1, 2, 3 ExProg: 4, 5				6	Monday 28 th August by 9am	Parkinson's disease
			Report: 1, 2, 3 ExProg: 4, 5				Multiple sclerosis
2		Report: 1, 2, 3 ExProg: 4, 5			8	Monday 11th September by 9am	Ageing & Dementia - 1
				Report: 1, 2, 3 ExProg: 4, 5			Ageing & Dementia - 2
3	Report: 4, 5 ExProg: 1, 2, 3				10	Monday 25 th September by 9am	Stroke
			Report: 4, 5 ExProg: 1, 2, 3				
4		Report: 4, 5 ExProg: 1, 2, 3			12	Monday 16th October by 9am	Psychosis & Anxiety (Pick ONE of either of the Psychosis cases OR the Anxiety case)
				Report: 4, 5 ExProg: 1, 2, 3			Complex Regional Pain Syndrome

ExProg: Exercise Program *Report:* Clinician Report

CST MARKING SHEET FOR PARTICIPATION

Date: / /

Markers Name: or Team ID:

Student Name	Comments	Mark (0–10)

Marking criteria for participation in the case study tutorial:

Outstanding Contributor (10%)	Contributions in class reflect exceptional preparation. Ideas offered are always substantive; provide one or more major insights as well as direction for the class. Challenges are well substantiated and persuasively presented. If this group were not active, the quality of discussion would be diminished markedly.
Good Contributor (8%)	Contributions in class reflect thorough preparation. Ideas offered are usually substantive; provide good insights and sometimes direction for the class. Challenges are well substantiated and often persuasive. If this group were not active, the quality of discussion would be diminished.
Adequate Contributor (6%)	Contributions in class reflect satisfactory preparation. Ideas offered are sometimes substantive, provide generally useful insights but seldom offer a new direction for the discussion. Challenges are sometimes presented, fairly well substantiated, and are sometimes persuasive. If this group were not active, the quality of discussion would be diminished somewhat.
Unsatisfactory Contributor (4%)	Contributions in class reflect inadequate preparation. Ideas offered are seldom substantive; provide few if any insights and never a constructive direction for the class. Integrative comments and effective challenges are absent. If this group were not active, it would have little impact on the learning outcomes.
Non-Participant (2%)	This group or individual has made minimal contribution during the case study. If this group/individual was not in attendance, it would make no difference to the learning outcomes