



Faculty of Medicine
School of Medical Sciences

HESC3592

Neuromuscular Rehabilitation

COURSE OUTLINE

Term 3, 2019

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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)

HESC3592 Course Information

This course provides the opportunity for students to understand the potential, and limitations, of exercise as a tool for clinical rehabilitation in patients 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 simulated case study learning sessions that emphasise the application of theory to clinical situations. These simulated case study learning sessions 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.

Credit Points: 6 UOC

Course Pre-requisites:

HESC2452 Movement Assessment & Instruction
NEUR3101 Muscle and Motor Control

OBJECTIVES OF THE COURSE

This course aims to:

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.

COURSE CONVENORS and INDUSTRY EXPERTS

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Office Hours: Mon, Wed, Thurs 9:00am – 4:00pm

Course Convenors:
Ms Jessica Bellamy j.bellamy@unsw.edu.au
Rm 203 Wallace Wurth Building West Lvl 2 ph: 9385 8710
Office Hours: Mon, Tues, Thurs & Fri 9.00am – 4:30pm

Students wishing to see the course coordinators should make an appointment *via* email as our offices are not readily accessible. We will organise to meet you in a convenient location elsewhere in the building.

Guest Lecturers:

- Mr. Martin Bending AEP mbending@australianunity.com.au
Exercise Physiologist, Australian Unity
- Ms Luisa Codamo AEP l.codamo@cpa.org.au
Cerebral Palsy Alliance
- Dr Rosemary Kayess r.kayess@unsw.edu.au
Disability Research Program,
Social Policy Research Centre
Faculty of Arts and Social Sciences / Faculty of
Law
- Dr Jasmine Menant j.menant@neura.edu.au
Neuroscience Research Australia
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Demonstrators and markers:

- Mr Hassan Qureshi h.qureshi@neura.edu.au
Neuroscience Research Australia
- Ms Muneeba Chaudhry m.chaudhry@unsw.edu.au
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- Ms Danyel Miller danny@archealth.com.au
Advanced Rehab Centre (ARC)
- Ms Angeliki Stivactas a.stivactas@neura.edu.au
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- Ms Kelly McLeod AEP k.mcleod@unsw.edu.au
- UNSW Medicine Lifestyle Clinic

Program Officer:

School of Medical
Sciences

Students are to submit all enquires via a web form at the
UNSW Student Portal Web Forms: <http://unsw.to/webforms>
Students to login with zID and zPASS
Ph: 9385 2557

COURSE STRUCTURE and TEACHING STRATEGIES

Two consecutive lectures (2hrs) occur each week on Monday 10am-12pm located in the Old Main Building 229. **Note:** There are NO lectures in week 4 (Monday 7th October) due to the public holiday.

Laboratories are run during weeks 2-8 & 10 for 2hrs. **Note:** Week 5 & 8 laboratories are scheduled off-site and therefore you will need to enrol in an altered laboratory time. 100% attendance is required for all laboratories. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance.

- Week 5: Neuroscience Research Australia (NeuRA) – Clinical Gait Lab
- Week 8: UNSW YMCA Swimming Pool

Simulated Case Study Scenario sessions (SCSLs) are run on Thursdays in weeks 3, 5, 7 & 9 for 1.5hrs. **Note:** 100% attendance is required for all SCSLs independent of 'Active' or 'Active Listener' allocated status. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance.

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 72 hours throughout the semester and students are expected (and strongly recommended) to do at least the same number of hours of additional study.

Course Philosophy and design

This course offers a blended learning teaching approach with emphasis on the application of theoretical knowledge to AEP professional practice in the field of Neurorehabilitation. The course will develop student understanding of commonly encountered neurological diseases and encourage students to apply already developed exercise physiology knowledge to treatment of several neurorehabilitation case studies. Assessments have been designed to reflect real-life case interpretation, exercise assessment and prescription for neurological cases via Simulated Case Study Learning sessions, exercise program writing, letter writing to other health professionals and an end of session *viva*.

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-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.

Simulated Case Study Learning sessions (SCSLs):

The Simulated Case Study Learning session (SCSL) 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. Simulated Case Study Learning sessions 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 SCSL's and to contribute to the discussion by reading the case study and associated questions provided in the weeks prior to the SCSL. Some students will be designated 'warm callers' prior to the SCSL. 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 SCSL and provide an answer to a question or issue being discussed and debated. The assessment of each SCSL will involve a participation component and hence unprepared students risk poor grading and, worse still, a less than optimal learning experience. A SCSL 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 Simulated Case Study Learning sessions 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, SCSLs 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 activity.

Assessment:

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.

TEXTBOOKS AND OTHER RESOURCES

Moodle

Information about the course as well as lectures, laboratory notes and information regarding SCSLs and assignments 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 notes, access your grades, find reference material in the course (such as this document), and communicate with the course convenors and your peers. Please see the course convenors if you would like more information to help you to make the most of this resource.

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

These resources will take the form of text books, journal articles or web-based resources. If available, links to the electronic form of these resources will be put on the course Moodle page. In each week's online learning activities (available through Moodle), students are directed to specific readings associated with that week's content and desired learning outcomes.

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

See also medalsciences.med.unsw.edu.au/students/undergraduate/learning-resources

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 (4thd 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).
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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.

Exercise Physiology Program Learning Outcomes

1. Develop a thorough understanding of the relationship between physical activity and health.
 2. 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.
 3. Attain skills and detailed clinical knowledge relevant to cardiopulmonary, metabolic, musculoskeletal and neuromuscular rehabilitation.
 4. Develop advanced problem-solving skills and a capacity for critical thinking.
 5. Develop an ability to engage in independent and reflective learning for the betterment of professional clinical practice.
 6. 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 or ethical practice.
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HESC3592 Course Learning Outcomes

1. Apply knowledge of the pathophysiology of a range of neuromuscular disorders at a level sufficient for effective communication with health care professionals and patients.
2. Demonstrate knowledge of current and emerging neuromuscular rehabilitation approaches.
3. Competently administer and interpret basic functional, psychological, biomechanical or neurological tests relevant for neuromuscular rehabilitation.
4. Effectively prescribe appropriate and safe exercise programs for patients with neuromuscular disorders.
5. Demonstrate sound clinical reasoning to inform targeted therapeutic exercise programs specific to patient presentation.

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.

COURSE EVALUATION AND DEVELOPMENT

For course evaluation, feedback has been gathered at the completion of the course, using among other means, UNSW's Course and Teaching Evaluation and Improvement Process and myExperience. Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback. In response to feedback from the last iteration of the course we have changed the following:

1. Reduced the turnaround time for feedback for students
2. Organised with our guest lecturers to include more videos and case studies pertaining to their presented pathology
3. Reduced the size of the SCSLs to increase opportunities for individual students to engage with our facilitators
4. Scheduled multiple demonstrators per laboratory class to support students

GENERAL INFORMATION

Attendance Requirements

For details on the Policy on Class Attendance and Absence see [Advice for Students](#) and the [Policy on Class Attendance and Absence](#).

Attendance at **laboratories and SCSLs is compulsory** and must be recorded in the class roll at the start of each class. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance. It is your responsibility to ensure that the demonstrator records your attendance and no discussions will be entered into after the completion of the class. Satisfactory completion of the work set for each class is essential. It should be noted that non-attendance for other than documented medical or other serious reasons, or unsatisfactory performance, during the session may result in an additional practical assessment exam or ineligibility to pass the course. Students who miss practical classes due to illness or for other reasons must submit a copy of medical certificates or other documentation to the course convenor and apply for special consideration within 24hrs hours.

Special Consideration

Please see [UNSW-Special Consideration](#) and [Student Advice-Special Consideration](#)

If you unavoidably miss the progress exam in HESC3592, you must lodge an application with UNSW Student Central for special consideration. If your request for consideration is granted an alternative assessment will be organised which may take the form of a supplementary exam or increased weighting of the final exam.

See: [Student-Advice-Reviews and Appeals](#)

Student Support Services

See: [Student Advice-Student support services.](#)

Academic Integrity and Plagiarism

The [UNSW Student Code](#) outlines the standard of conduct expected of students with respect to their academic integrity and plagiarism.

More details of what constitutes plagiarism can be found [here](#)

COURSE TIMETABLE

Will be posted to the Moodle Page

ASSESSMENT TASKS

Assessment of your learning in the course will be achieved through examinations (oral viva, multiple choice questions, clinical skills assessment), participation in the SCSL classes and the completion of clinical reports and exercise programs arising from the SCSL classes. The examination format tests your ability to apply and communicate knowledge to the management of musculoskeletal conditions in a time-constrained context.

These requirements are similar to those encountered when dealing with a 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 learning experience. The emphasis will be the application of course content to clinical practice.

The SCSL classes will be concerned with developing your clinical reasoning skills regarding the detailed management plans for patients with specific neuromuscular conditions. The majority of assessment for the SCSL classes is completed as individuals in teams that have discussed and shared ideas prior to the SCSL favouring better individual performances. Team preparation and cohesiveness encourages sharing of ideas and knowledge as well as critical analysis of patient management plans.

Note the last day to drop a T3 course without financial penalty is 29th September 2019.

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

Summary of Assessments	% Total Marks	Due Date
TASK 1 – SCSL PERFORMANCE 'Active' Participation	20%	You are required to 'actively' participate in two (2) SCSLs in either week 3, 5, 7 or 9. Each 'active' SCSL contributes to 10% of your final grade.
TASK 2 – SCSL CASE STUDY REPORTS Part a) Initial Assessment/GP Report Part b) Exercise Program	Part a) 10% Part b) 10%	You are required to be an 'active listener' for two (2) SCSLs in either week 3, 5, 7 or 9. You are then required to submit either an initial assessment/GP report or exercise program the following week. NOTE: You must submit both an initial assessment/GP report AND exercise program to meet course requirements.
TASK 3 – VIVA (CLINICAL SKILLS ASSESSMENT)	30%	Exam period
TASK 4 – END OF SESSION EXAM	30%	Exam period

Task 1: SCSL Performance (20%)

Simulated Case Study Learning sessions (SCSLs) will be held four (4) times throughout the term. On two (2) of these occasions, students will contribute to the facilitated case study discussion as part of a team. Active participation in each SCSL equates to 10% of the total course mark (two SCSL = 20% total course mark). Each student's contribution during the SCSL will be assessed by an academic and their peers (students from the corresponding 'active listening' 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 SCSL. 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 marks will be weighted as follows: academic observers provide a mark for each individual student (60%) and a group mark (10%). The 'active listening' group provide an individual mark (20%). Students will mark their team members (10%). The marking criteria for the participation and the case study report will be made available on the Moodle homepage. Feedback will be provided at the close of the assessment task.

Learning Outcomes

- Apply knowledge of the pathophysiology of a range of neuromuscular disorders at a level sufficient for effective communication with health care professionals and patients.
- Demonstrate knowledge of current and emerging neuromuscular rehabilitation approaches.
- Competently administer and interpret basic functional, psychological, biomechanical or neurological tests relevant for neuromuscular rehabilitation.

Task 2: SCSL Case Study Reports (20%)

Students will be assigned to an 'active listening' group for two (2) Simulated Case Study Learning (SCSL) sessions. For each of these sessions, students are required to submit either; 1) a written report in the form of a letter to the patient's physician and treating parties regarding completion of an Exercise Physiology initial assessment (10%), or 2) an exercise program in a suitable form to guide the patient independently and for the clinician's record (10%). The marking rubric will be made available on the Moodle homepage. Individualised written feedback is provided for all reports and exercise programs. **Note:** Students MUST submit BOTH a written report AND exercise program to meet the HESC3592 course requirements.

Learning Outcomes:

- Apply knowledge of the pathophysiology of a range of neuromuscular disorders at a level sufficient for effective communication with health care professionals and patients.
- Effectively prescribe appropriate and safe exercise programs for patients with neuromuscular disorders.
- Demonstrate sound clinical reasoning to inform targeted therapeutic exercise programs specific to patient presentation.

Task 3: Viva – Clinical Skills Assessment (30%)

The Viva assess the practical application of the knowledge and skills covered in the course. It involves a 40-minute oral and skills assessment specific to Exercise Physiology clinical practice in neuromuscular rehabilitation. The oral assessment involves verbal responses to questions posed by the examiner. The clinical skills demonstration requires the student to perform a physical assessment or exercise prescription technique commonly used by Exercise Physiologists in neuromuscular rehabilitation. Before commencing the assessment, students will be given 10-minutes to read their assigned case study and consider the specific questions and skills that will be addressed. The marking rubric for the Viva will be made available on the Moodle homepage. There will be three academic markers who will provide verbal feedback to the students immediately following the Viva.

Learning Outcomes:

- Apply knowledge of the pathophysiology of a range of neuromuscular disorders at a level sufficient for effective communication with health care professionals and patients.
- Competently administer and interpret basic functional, psychological, biomechanical or neurological tests relevant for neuromuscular rehabilitation.
- Effectively prescribe appropriate and safe exercise programs for patients with neuromuscular disorders.

Task 4: End of Session Exam (30%)

The purpose of this exam is to test your recall and understanding of the concepts covered in this course including lectures, laboratories, required readings and simulated case study learning sessions. The format will consist of 80 multiple choice questions (1 mark each). The exam will be held during the end of session exam period.

Learning Outcomes:

- Demonstrate knowledge of current and emerging neuromuscular rehabilitation approaches.
- Competently administer and interpret basic functional, psychological, biomechanical or neurological tests relevant for neuromuscular rehabilitation.
- Demonstrate sound clinical reasoning to inform targeted therapeutic exercise programs specific to patient presentation.