

Course Outline

Code: SPX412

Title: Exercise in Neurological Rehabilitation

School:	Health & Sport Science
Teaching Session:	Session 5
Year:	2019
Course Coordinator:	A/Prof Suzanne Broadbent
Course Moderator:	Michelle Small

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1 Description

This course is required for 4th year Bachelor of Clinical Exercise Science students to become accredited as Exercise Physiologists with ESSA. You will add to your knowledge of chronic conditions and will further develop skills in evidence-based practice for neurological and neuromuscular conditions. You will focus on neurological/muscular examination, clinical assessments, exercise management and multidisciplinary care for neurological clients in primary, secondary and tertiary care settings.

1.2 Course topics

1. Neurological and mental health conditions and medical and allied health management, including: stroke, spinal cord injuries, traumatic and acquired brain injuries, cerebral palsy, multiple sclerosis, Parkinson's Disease and Parkinsonism, chronic pain syndromes, dementias and mental health.
2. Physical examination, sensory and movement analysis for neurological conditions; identifying signs and symptoms prior to exercise.
3. Medications used for neurological and mental health conditions; effects and interactions.
4. Selecting and applying exercise for neurological and mental health conditions. Evidence-based practice.
5. Identification of signs and symptoms during exercise and recovery.
6. Modifying exercises in response to neurological pathologies, mental health conditions, physical function and task demands.
7. Monitoring exercise progression with neurological and mental health clients.
8. Safety and contraindications with neurological and mental health clients.

2. What level is this course?

400 level Graduate - Independent application of graduate knowledge and skills. Meets AQF and professional requirements. May require pre-requisites and developing level knowledge/skills. Normally taken in the 4th year of an undergraduate program

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

Specific Learning Outcomes On successful completion of this course you should be able to:	Assessment Tasks You will be assessed on the learning outcome in task/s:	Graduate Qualities or Professional Standards mapping Completing these tasks successfully will contribute to you becoming:
Explain the roles, skills and scope of practice of an exercise physiologist in neurological rehabilitation, mental health, multidisciplinary care, referral and discharge within the Australian health care system.	1 – Case study consultation plan 2 – Case study practical examination	Empowered. Ethical.
Apply knowledge of pathophysiology's, medical, surgical and allied health management of neurological and mental health conditions within the scope of practice of an exercise physiologist.	2 – Case study practical examination 3 – Written examination	Knowledgeable. Empowered.
Apply clinical decision making to undertake physical examinations, clinical assessments and exercise management appropriate for neurological rehabilitation and exercise for mental health.	1 – Case study consultation plan 2 – Case study practical examination	Knowledgeable. Creative and critical thinkers.
Demonstrate recognition of signs and symptoms of neurological and mental health conditions before, during and after exercise.	2 – Case study practical examination 3 – Written examination	Knowledgeable. Empowered.
Identify contraindications to exercise for neurological rehabilitation and mental health and apply knowledge by taking appropriate action.	1 – Case study consultation plan 2 – Case study practical examination 3 – Written examination	Knowledgeable. Empowered.
Apply scientific research and current clinical guidelines to clinical decision-making in neurological and mental health exercise physiology practice.	1 – Case study consultation plan 2 – Case study practical examination	Knowledgeable. Creative and critical thinkers.

5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1 Enrolment restrictions

This course is available to students enrolled in the programmes SC346 and SC304.

5.2 Pre-requisites

SPX231, SPX300 and SPX411

5.3 Co-requisites

Nil

5.4 Anti-requisites

Nil

5.5 Specific assumed prior knowledge and skills (where applicable)

It is assumed that you will build upon your knowledge of neuroscience and neural control gained in SPX231 Motor Control and Learning, your skills in musculoskeletal assessment gained in SPX411 Exercise in Musculoskeletal Rehabilitation, and your skills in clinical history taking, record keeping, physical examination, clinical assessment and evidence-based clinical decision-making gained in SPX300 Introduction to Clinical Placement.

6. How am I going to be assessed?

6.1 Grading scale

Standard – High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL)

6.2 Details of early feedback on progress

Feedback in the first week will be provided after completion of Task 1, the Case Study Consultation Plan, and Task 2, the Group Case Study practical examination. Students may apply to the Course Coordinator for earlier feedback on their draft Task 1 by Thursday of the first week.

6.3 Assessment tasks

Task No.	Assessment Tasks	Individual or Group	Weighting %	What is the duration / length?	When should I submit?	Where should I submit it?	WIL or PC
1	Case study consultation plan	Individual	20	30 minutes, approximately 1000 words	Friday of first week	Blackboard, SafeAssign	No
2	Case study practical examination	Group	30	30 minutes	Thursday of the second week	In class	No
3	Written examination	Individual	50	120 minutes	Friday of second week	In class	No
			100%				

Assessment Task 1: Case Study Consultation Plan

Goal:	To demonstrate understanding of the clinical history, physical examination, referral and diagnostic testing required for clinical decision-making in an initial consultation with a neurological client.
Product:	Using the provided case description, you will write a plan of an initial clinical consultation which should include a brief summary of the prioritised presenting features of the case, a list of the questions you would ask the client, the physical examinations you might undertake in the initial consult if appropriate, possible referrals or diagnostic tests you might seek, in order to gather sufficient information to commence clinical decision-making.
Format:	Individual written response to a single neurological case study description.
Criteria:	<ol style="list-style-type: none"> 1) Application of discipline knowledge for clinical decision-making and care planning. 2) Recognised skills and procedures are organised in the plan. 3) Demonstrated clinical reasoning skills and use of scientific evidence in the plan. 4) Plan embeds understanding of the role, skills and scope of practice of an exercise physiologist in neurological rehabilitation and exercise for mental health. <p>You will receive a numerical mark out of 20 against a grading rubric. Feedback will be provided to each student.</p>

Assessment Task 2: Case Study Practical Examination

Goal:	To demonstrate selected skills in case study analysis, physical examination, neurological and mental health assessments within exercise physiology scope of practice, signs and symptom identification, exercise prescription and clinical reasoning, based on evidence collected from scientific literature.
Product:	You will form a group (3 - 4 students) who have been given the same case study as in the Task 1 consult plan. The group will research and summarise the pathophysiology of the neurological or mental health condition, and will demonstrate their understanding of the relevant management strategies (medical, surgical, pharmacological, allied health) and exercise rehabilitation guidelines. Each student will be responsible for one component of the task. The group will present a discussion to the examiner, outlining a 6-week management plan for the client, and justifying their choice of exercise assessments and rehabilitation exercises, based on exercise physiology scope of practice. The group will be expected to answer question from the examiner including medication effects, possible referral pathways, exercise progression, discharge criteria, and may also be required to demonstrate particular exercises that are part of the group program.
Format:	The group is expected to divide the task between students, to allow equal contribution from all students. You may choose to have students "role play" the "exercise physiologist" and "client" to demonstrate physical assessments, exercises and stretches. You may also use some equipment provided by the examiner to demonstrate your exercise program. You may bring written summary notes from Task 1 and Task 2 into the examination room, to refer to during the exam.
Criteria:	<ol style="list-style-type: none"> 1) Apply clinical reasoning and critical thinking to a case study scenario. 2) Demonstrate understanding of the role and scope of practice of an exercise physiologist in neurological rehabilitation or exercise for mental health. 3) Demonstrate skills and competencies in physical examination, neurological/mental health assessment, identification of signs/symptoms/contraindications to exercise. 4) Apply knowledge of the condition to review and gather evidence and information from scientific literature, including peer-reviewed research and current clinical guidelines or position stands, as part of the clinical decision-making process. <p>You will be provided with group feedback, with the same mark allocated to all students in the group. A shared statement of contribution will be required from the group to allow this allocation. If your peers wish to be allotted an alternate proportion of marks, this must be justified and negotiated with the examiner and Course Coordinator.</p> <p>You will receive a numerical mark out of 30 against a grading rubric.</p>

Assessment Task 3: Written Examination

Goal:	To demonstrate critical knowledge of neurological and mental health pathophysiologies, signs, symptoms, medication effects and interactions and contraindications to exercise.
Product:	You will complete a written examination comprising multiple choice and short answer questions.
Format:	Individual written examination.
Criteria:	<p>Correct answers to the questions will demonstrate:</p> <ol style="list-style-type: none"> 1) Knowledge of the aetiology, characteristics, and physiological and biochemical mechanisms contributing to neurological and mental health conditions. 2) Knowledge of the medical, surgical, pharmacological and allied health treatments of a range of neurological and mental health conditions. 3) Knowledge of signs, symptoms and contraindications of neurological and mental health conditions before, during and after exercise, and the selection of appropriate actions during rehabilitation and general exercise prescription. 4) Application of knowledge of the specific mechanisms of action of differing modalities of rehabilitation exercises. <p>You will receive a numerical mark out of 50 for this examination.</p>

7. What are the course activities?

7.1 Directed study hours

The directed study hours listed here are a portion of the workload for this course. A 12 unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

Location:	Directed study hours for location:
USC Sunshine Coast	This course is delivered as an intensive over 2 weeks full-time. Each week comprises workshops and practical/simulated sessions, as well as written and practical assessments. First Week (Session 5 Week 1): Monday – Friday mornings 4 x 3 hr workshops; Monday – Friday afternoons, 4 x 4 hr practical/simulation (lab); Second Week (Session 5 Week 2): Monday – Wednesday mornings 4 x 3hr workshops; Monday – Wednesday afternoons, 4 x 4 hr practical/simulation (lab); Thursday and Friday respectively scheduled for group oral and individual written assessments.

7.2 Course content

Week # / Module #	What key concepts/content will I learn?
Monday of first week	Course Introduction. Review of neuroanatomy, nervous system, cortical function and neurological assessments. Epidemiology of neurological conditions. Australian Health care system and NDIS. Physical examinations and common screening tools. Medications for neurological conditions; Simulation room E1.12: transfers, wheelchairs and ambulatory aids. Chair and bed-based exercises in acute, chronic and home care
Tuesday of first week	Stroke: ischaemic and haemorrhagic: management, exercise assessments and prescription. Neurological pain and pharmacological management Prac: Rehab gym visit: observation, discussion and interaction with clients with neurological clients, and AEPs, in the rehab gym setting.
Wednesday of first week	Multiple Sclerosis. Aetiology, characteristics, medications, management. Exercise programming and case study analyses. Prac: Case study PBL: Specific training for stroke and MS rehabilitation. group exercise balance, gait, mobility training and prescription for falls prevention/balance training. Student-led activity – exercise prescription. Client barriers, enablers and adaptations
Thursday of first week	Alzheimer's Disease and other dementias. Cognitive and neurological impairments. Aetiology, characteristics, medications, management. Exercise programming. Case study PBL: Exercise programming - student-led prac and workshop; developing mobility and functional rehab programs; use of cueing.
Friday of first week	Mental Health: Full day lectures and workshop. Guest presenters: Clinical psychologist and AEP. Mental health legislative framework and multidisciplinary care; AEP scope of practice. Diagnostic and screening tools. Anxiety, depression, suicidal fixation, Psychotic and Affective disorders, traumatic/stress disorders. Medications and effects; barriers to physical activity; management strategies for lack of motivation and co-morbidities. safety and risks. Prac: Case studies. Specific exercise assessments and programming for a variety of mental health conditions and co-morbidities.

	Assessment task 1: Case study consult plan submitted to Safe Assign by 1pm.
Monday of the second week	Parkinson's Disease and Parkinsonism. Aetiology, characteristics, medications, management; exercise testing and prescription. Current directions in exercise rehab. Prac: PD Warrior and high velocity/high amplitude rehabilitation for PD. Falls prevention for PD clients
Tuesday of the second week	Spinal cord injuries: paraplegia and tetraplegia. Traumatic and acquired brain injuries. Aetiology, characteristics, medications, management; exercise testing and prescription. Guest speaker TBI specialist AEP, Prac: Prac: Nintendo Wii "Wii Hab" for neurological clients. Group A
Wednesday of the second week	Cerebral Palsy. Aetiology, characteristics, medications, management. Exercise assessments and programming. Virtual reality training for neuro conditions. Prac: Nintendo Wii "WiiHab" for neurological clients. Group B
Thursday of the second week	Assessment task 2: Case study practical (oral) examinations.
Friday of the second week	Exam review Assessment task 3: written exam (1 – 3 pm)

Please note that the course activities may be subject to variation.

8. What resources do I need to undertake this course?

Please note that course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site. Please log in as soon as possible.

8.1 Prescribed text(s)

Please note that you need to have regular access to the resource(s) listed below as they are required:

Author	Year	Title	Publisher
ACSM	2016	ACSM's Exercise Management for Persons with Chronic Diseases and Disabilities. Moore, Durstine and Painter 4 th edition	Human Kinetics

8.2 Specific requirements

Goniometers, small and medium

9. Risk management

Health and safety risks for this course have been assessed as low.

It is your responsibility as a student to review course material, search online, discuss with lecturers and peers, and understand the health and safety risks associated with your specific course of study. It is also your responsibility to familiarise yourself with the University's general health and safety principles by reviewing the [online Health Safety and Wellbeing training module for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1 Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2 Assessment: Additional requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- a) The final mark is in the percentage range 47% to 49.4%
- b) The course is graded using the Standard Grading scale
- c) You have not failed an assessment task in the course due to academic misconduct

10.3 Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day
- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.

To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to [Student Hub](#).

Contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au

10.5 Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct

- Students with a Disability

Visit the USC website:

<http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.6 General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC South Bank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au