Unit Outline (Higher Education)

Institute / School:	Institute of Health and Wellbeing
Unit Title:	ADVANCED MOTOR LEARNING AND CONTROL
Unit ID:	EXSCI3171
Credit Points:	15.00
Prerequisite(s):	(EXSCI1703)
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	069903

Description of the Unit:

This unit considers the theoretical underpinnings of the nature and cause of movement across the lifespan. It enables students to develop analytical and situational skills for utilising motor control information from both a behavioural and physiological perspective. This unit also focuses on the changes in motor function or motor performance that may occur with ageing, injury and fatigue and highlights the interaction existing between motor control and other sport science disciplines.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced			✔			

Learning Outcomes:

Knowledge:

K1. Describe the neuro-motor basis for motor control.

K2. Critique the common theoretical models proposed to explain motor control.

K3. Examine how the sensory components of motor control influence the control of human movement and the limits they place on human motor skill performance.

K4. Appraise the organisation and contribution of the neural sub-systems to the control of gait, reach-to-grasp skills and postural control.

K5. Define and critically evaluate impairments associated with pathophysiology of the motor cortex, cerebellum and basal ganglia within the action systems, sensory/perceptual systems and cognitive systems.

K6. Compare and contrast the changes in motor function or motor performance that may occur with ageing, injury and fatigue.

Skills:

S1. Implement some of the common methods used for assessing coordination, somatosensory, visual, cognitive/perceptual impairments in a laboratory setting.

S2. Explore motor strategies used for stance postural control.

S3. Explore the use of anticipatory postural adjustment in lifting task.

S4. Examine and critically evaluate how properties of task affect reach-to-grasp.

Application of knowledge and skills:

A1. Apply concepts from a motor-program based theory and the dynamical systems theory to identify the motor performance problems a person currently has and would need to improve.

A2. Evaluate posture and balance utilizing electromyography to quantify muscle function.

A3. Integrate knowledge of and skills in motor control and learning with other study areas of exercise science.

Unit Content:

- Neuro-motor basis for motor control;
- Relevant theoretical models of motor control;
- How the sensory components of motor control influence the control of human movement;
- Movement control mechanisms for gait, reach-to-grasp skills and postural control;
- Neural origin of common motor disorders and associated impairments/deficits;
- Changes in motor function or motor performance that may occur with ageing, injury and fatigue.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1-K6, S1-S4, A2-A3	Attendance and participation in laboratory sessions to complete formative assessments of practical skills.	90% attendance required to satisfy ongoing formative assessments.	Satisfactory/Unsatisfactory
K4-K6, A3, S1	Design an intervention for an individual with motor function changes due to impairments, ageing, or injury, including suitable pre- and post-assessment tools.	Written report.	20-40%
K1-K6, S1, A1-3	Practical Assessment. Students will be assessed on their ability to perform a relevant test of motor or cognitive function.	Practical assessment	20-40%
K1-K6, A1, S4	Self-directed study of unit content	Test	25-45%

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool