

Graduate Entry Application Form 2012

If you are unsure of your eligibility for graduate entry membership of Exercise & Sports Science Australia (ESSA), please contact the ESSA National Office on (07) 3856 5622 or email info@essa.org.au

General information

The graduate entry membership is for use by:

- Exercise & sports science undergraduates, who are applying to undertake postgraduate university studies in the field of exercise & sports science or clinical exercise physiology;
- Prospective exercise & sports science university students who have completed a non-exercise & sports science undergraduate program, who are applying to undertake postgraduate university studies in the field of exercise & sports science or clinical exercise physiology.

Many national universities require that prospective postgraduate students are able to meet the stringent application requirements of ESSA's exercise science membership, prior to enrolment being accepted for postgraduate studies. This ensures upon postgraduate graduation that eligible students will be eligible to apply for accreditation as exercise physiologist.

This application involves the following steps:

1. ESSA will assess your application to meet it's exercise science / full membership requirements:
 - If your application is successful, you will receive written confirmation your application has been approved.
 - If your application is unsuccessful, you will receive written confirmation that your application has been declined, and information about the areas of study that are required to be completed for you to meet the exercise science / full member application requirements.
2. Applications will be assessed within 30 days of lodgement.
3. The assessment of this application is \$88. Applicants that are approved will receive automatic Graduate Entry membership status, and will be automatically eligible for Exercise Science/ Full membership on completion of their postgraduate studies. There is no need for graduate entry members to apply for Exercise Science/ Full membership. On completion of your studies, ESSA will request evidence of completion through the form of an academic transcript or graduation certificate.
4. ESSA may request evidence of postgraduate course enrolment at anytime during the academic year.
5. If your application is approved your graduate entry membership with ESSA will commence from January 1 2012.

Graduate Entry Application Form

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To apply for graduate entry membership of ESSA applicants must complete;	Application Page Reference	Tick when completed
1. Complete the application form. (Section A-G, plus Appendix A & B)		
2. Complete Personal Details (Section A)	Page 3	
3. Detail prospective university studies	Page 3	
4. List a Professional Referee (Section C)	Page 3	
5. Detail complete university studies (Section D, for NUCAP students only) or see point 10 below for non-NUCAP students	Page 4	
6. Provide Academic Transcript (Section E) a. Copies must be signed and authenticated by a Justice of the Peace. ** Attach this to your application	Page 4	
7. Complete professional declaration (Section F)	Page 5	
8. Complete Statutory Declaration (Section G)	Page 5	
9. The work experience log book is complete and attached (Section I) ** Attach this to your application	Page 10	
10. Detail complete university studies (Section H, for non-NUCAP students)	Page 7	
11. Enclose copies of unit of study overviews (unit outlines) for all subjects studied ** Attach this to your application	Attach	
12. Include membership payment of \$88.00 (GST incl.) Please enclose a cheque/money order for your membership fee or complete the Credit Card Payment Slip. Cheques should be made payable to Exercise & Sports Science Australia	Page 9	
13. Send Application Forms to: Exercise & Sports Science Australia (ESSA) The Assessment Team PO Box 123 Red Hill QLD 4059 ** Fax applications will not be accepted		

Required by Non-NUCAP applicants

Please note :

**** Applications will not be assessed until a COMPLETE application has been received by the office.**

Application is for (please tick one)

If you are an exercise science or sports science graduate from a **NUCAP¹** accredited course complete sections A to F, and H (practicum logbook only)

If you are an exercise science or sports science graduate from a **non NUCAP¹** accredited course, or degree / program from another field or industry please complete sections A-H, plus appendix A&B

1. Please refer to page 4 for a full list of NUCAP accredited courses.

Section A - Personal Details

Title Given names Surname
Date of Birth email address

** Required for your access to the ESSA website.*

Postal Address

Address
Town/suburb State Postcode
Phone Fax

Work Address

Address
Town/suburb State Postcode
Phone Fax
Mobile

Current employment

Previous position held (detail position title and date position held)

Section B - Prospective University Studies

University Degree

Section C - Professional Referee

Title Given names Surname
Profession
Qualifications and professional experience relevant to exercise and sports science

Address
Town/ Suburb State Postcode
Phone eMail
Date Signature

Please note that ESSA may contact your professional referee to verify information contained within the application.

Section D - Complete university study

If you have not completed a NUCAP accredited course, you must complete Section G of this application form.

If you completed and graduated from a NUCAP accredited course please tick the relevant course(s) below:

University Name	Course Name	Course Code	Course completion	Please tick
Deakin University	Bachelor of Exercise and Sports Science	H343	From 2011	
Edith Cowan University	Bachelor of Science (Exercise and Sports Science)	M89	From 2010	
James Cook University	Bachelor of Exercise and Sports Science -Cairns campus	70610	From 2010	
	Bachelor of Exercise and Sports Science -Townsville campus	70610/ 102710	From 2010	
	Bachelor of Exercise and Sports Science/ Bachelor of Business -Townsville campus	70610B	From 2011	
	Bachelor of Exercise and Sports Science/ Bachelor of Education -Townsville campus	70610E/ 102210	From 2011	
Queensland University of Technology	Bachelor of Applied Science	HM40	2010 graduates only	
	Bachelor of Exercise & Movement Science	HM4	From 2011	
Southern Cross University	Bachelor of Sport and Exercise Science	335100	From 2011	
University of Queensland	Bachelor of Exercise and Sport Science (Exercise and Sport Science Stream)	2414	From 2010	
University of Sydney	Bachelor of Applied Science (Exercise & Sports Science)	SH088	From 2010*	
	Bachelor of Applied Science (Exercise & Sports Science)/ Master of Nutrition & Dietetics	SH139	From 2011	
	Bachelor of Applied Science (Exercise, Sports Science & Nutrition)	SH115	From 2010	
	Bachelor of Applied Science (Exercise & Sports Science)/ Bachelor of Science (Nutrition & Dietetics/ Honours)	SH093	From 2010	
University of Western Australia	Bachelor of Science (Exercise and Health)	50110	From 2011	
University of Wollongong	Bachelor of Science (Exercise Science)	749:HS26	From 2010	

*Conditions apply - please contact the ESSA National Office.

The course codes must match otherwise complete section G.

Please attach to this application copies (not originals) of relevant academic transcripts officially issued by the university and signed and authenticated by a Justice of the Peace or notary (see listings of notaries under Section G of this application). Please highlight on the transcript evidence that the relevant degree has been awarded. If this is not shown on the transcript you will need to supply an official letter from the university registrar stating that you have satisfied the requirements of the degree in addition to the transcript.

If you have not ticked one of the NUCAP accredited courses above, you must complete Section H, starting on page 11.

Section F - Professional Declaration

Declaration

a) I certify that the information supplied on and within this form is true and correct.

Applicant signature

Date

b) If accepted as an graduate entry member of the Association I agree to abide by the ESSA Code of Ethics.

Applicant signature

Date

c) I certify that if I am working with clients/ human subjects (no matter the type) I will have current professional indemnity and public insurance and hold current first aid and cardiopulmonary resuscitation (CPR) qualifications.

Applicant signature

Date

Section G - Statutory Declaration

Commonwealth of Australia

Statutory Declaration

Statutory Declarations Act 1959

1. Insert the name, address and occupation of person making the declaration I,
(name) , of (address)

And of (occupation) make the following declaration under the Statutory Declarations Act 1959:

2. Set out matter declared to in numbered paragraphs

“The attached documentation accurately indicates how the criteria for necessary and sufficient knowledge, skills and competencies are met in order to fulfil application requirements for graduate entry membership with Exercise & Sports Science Australia”. I understand that a person who intentionally makes a false statement in a statutory declaration is guilty of an offence under section 11 of the Statutory Declarations Act 1959, and I believe that the statements in this declaration are true in every particular.

3. Signature of person making the declaration

4. Place

5. Day

6. Month and year Declared at 4. on 5. of 6.

Before me,

7. Signature of person before whom the declaration is made (see over)

8 Full name, qualification and address of person before whom the declaration is made (in printed letters)

(name) (qualification) of

(address)

Note 1 A person who intentionally makes a false statement in a statutory declaration is guilty of an offence, the punishment for which is imprisonment for a term of 4 years — see section 11 of the Statutory Declarations Act 1959.

Note 2 Chapter 2 of the Criminal Code applies to all offences against the Statutory Declarations Act 1959 — see section 5A of the Statutory Declarations Act 1959.

A statutory declaration under the Statutory Declarations Act 1959 may be made before—

1. a person who is currently licensed or registered under a law to practise in one of the following occupations:

Chiropractor Dentist Legal practitioner Medical practitioner Nurse Optometrist

Patent attorney Pharmacist Physiotherapist Psychologist Trade marks attorney Veterinary surgeon

2. a person who is enrolled on the roll of the Supreme Court of a State or Territory, or the High Court of Australia, as a legal practitioner (however described); or

3. a person who is in the following list:

Agent of the Australian Postal Corporation who is in charge of an office supplying postal services to the public

Australian Consular Officer or Australian Diplomatic Officer (within the meaning of the Consular Fees Act 1955)

Bailiff

Bank officer with 5 or more continuous years of service

Building society officer with 5 or more years of continuous service

Chief executive officer of a Commonwealth court

Clerk of a court

Commissioner for Affidavits

Commissioner for Declarations

Credit union officer with 5 or more years of continuous service

Employee of the Australian Trade Commission who is:

(a) in a country or place outside Australia; and

(b) authorised under paragraph 3 (d) of the Consular Fees Act 1955; and

(c) exercising his or her function in that place

Employee of the Commonwealth who is:

(a) in a country or place outside Australia; and

(b) authorised under paragraph 3 (c) of the Consular Fees Act 1955; and

(c) exercising his or her function in that place

Fellow of the National Tax Accountants' Association

Finance company officer with 5 or more years of continuous service

Holder of a statutory office not specified in another item in this list

Judge of a court

Justice of the Peace

Magistrate

Marriage celebrant registered under Subdivision C of Division 1 of Part IV of the Marriage Act 1961

Master of a court

Member of Chartered Secretaries Australia

Member of Engineers Australia, other than at the grade of student

Member of the Association of Taxation and Management Accountants

Member of the Australian Defence Force who is:

(a) an officer; or

(b) a non-commissioned officer within the meaning of the Defence Force Discipline Act 1982 with 5 or more years of continuous service; or

(c) a warrant officer within the meaning of that Act

Member of the Institute of Chartered Accountants in Australia, the Australian Society of Certified Practising Accountants or the National Institute of Accountants

Member of:

(a) the Parliament of the Commonwealth; or

(b) the Parliament of a State; or

(c) a Territory legislature; or

(d) a local government authority of a State or Territory

Minister of religion registered under Subdivision A of Division 1 of Part IV of the Marriage Act 1961

Notary public

Permanent employee of the Australian Postal Corporation with 5 or more years of continuous service who is employed in an office supplying postal services to the public

Permanent employee of:

(a) the Commonwealth or a Commonwealth authority; or

(b) a State or Territory or a State or Territory authority; or

(c) a local government authority;

with 5 or more years of continuous service who is not specified in another item in this list

Person before whom a statutory declaration may be made under the law of the State or Territory in which the declaration is made

Police officer

Registrar, or Deputy Registrar, of a court

Senior Executive Service employee of:

(a) the Commonwealth or a Commonwealth authority; or

(b) a State or Territory or a State or Territory authority

Sheriff

Sheriff's officer

Teacher employed on a full-time basis at a school or tertiary education institution

Section H - Required Study Areas

This section must be completed by those who have not graduated from one of the NUCAP accredited courses. Applicants will also need to submit unit of study overviews which should include lecture and tutorial/laboratory content descriptions. The tables below must be completed comprehensively – failure to do so will delay the processing of your application.

G1. Please enter below the university qualification(s) you are using to satisfy the study areas listed below.

Degree/ course title Degree code	Institution	Year Completed
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
Degree/ course title Degree code	Institution	Year Completed
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
Degree/ course title Degree code	Institution	Year Completed
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

Please replicate table if you are using more than three university courses to satisfy the study areas listed below and attach this to a separate page and tick this box

Transcripts:

Please attach to this application copies (not originals) of relevant academic transcripts officially issued by the university and **signed and authenticated by a Justice of the Peace or notary** (see listings of notaries under Section G of this application). Please highlight on the transcript evidence that the **relevant degree has been awarded**. If this is not shown on the transcript you will need to supply an official letter from the university registrar stating that you have satisfied the requirements of the degree in addition to the transcript.

In the table below you must identify which units of study you have completed that satisfy the study areas listed. Where a unit of study is used more than once to satisfy areas of study or more than one unit of study is used to satisfy a study area, this will be closely examined by the assessor to ensure that the necessary curriculum has been covered.

H2. Complete the following tables

Study Area	Please detail the institution where the study was completed together with the name and code of the unit of study (as it appears on the attached academic transcript/s)
A. Core areas of study	
Structural and functional anatomy	
Human physiology	
Psychology/ psychosocial/behavioural studies	
Research methods and statistics	
B. Core sub-discipline areas of study	
Exercise Physiology	
Biomechanics	
Sport and exercise psychology	
Motor control/motor learning/skill acquisition	
Advanced ¹ unit of study 1	
Advanced ¹ unit of study 2	
C. Additional areas of study	
	Note the units of study that you have completed that satisfy the following study areas as per the essential knowledge and skills criteria contained in Appendix A of this application.
Human growth, development and ageing	
Exercise, health and disease	
Health, fitness and performance assessment	
Exercise programming and prescription	
Nutrition, health and body composition	

1. Advanced unit of study – a unit of study that has a **pre-requisite unit of study** within the same suite of units and sub-discipline area. It cannot be a co-requisite unit.

If you are unsure if one of your units matches a study area please refer to Appendix A (pages 13-23) of the application.

Payment Details

Card Type (Please select) VISA Mastercard

Cardholders Name Expiry of Card

Card Number

I authorise Exercise & Sports Science Australia to debit my credit card for the amount of **\$88.00**. Yes No

Signature Date

Please note – membership is based upon a calendar year, if you join part way through a year you will be required to pay the full amount for the membership and upon renewal in the subsequent year you will be charged a pro-rata amount equivalent to your date of joining.

Office Use Only

Date received _____
Assessor _____
Outcome _____
Date approved _____

Postal Address

Exercise & Sports Science Australia
The Assessment Team
P.O. Box 123, Red Hill QLD 4059
Ph 07 3856 5622 Fax 07 3856 5688



Section I - Logbook

Use this logbook to collect evidence of practicum hours to support your application for Graduate entry membership of ESSA. Attach this logbook to your application.

Information for supervisors and applicants

As part of the requirements to attain Graduate entry membership of ESSA applicants must demonstrate that they have completed 140 hours of relevant and appropriately supervised apparently healthy practicum. The supervisor of the practicum must see below*.

The supervisor is required to sign off on the hours as declared to have been completed by the applicant. The applicant is asked to provide details on the professional background of any supervisor's referred to in the logbook, together with the supervisor's contact details so that ESSA may contact them to verify any information as necessary.

If you are required to complete any aspects of the practicum logbook retrospectively and you are unable to contact your supervisor to sign off on the hours, you must provide a written statement from an employer or a relevant staff member within the academic unit where you studied (eg the work experience coordinator), to verify that the hours were completed as stated on your application form.

Personal details of applicant

Title	<input type="text"/>
Name	<input type="text"/>
Address	<input type="text"/>
Phone	<input type="text"/>
Mobile	<input type="text"/>

The supervisor of practicum must be:

- i) an AEP
- ii) an exercise professional with or capable of attaining, full membership of ESSA;
- iii) a university-trained allied health professional with experience in exercise delivery, and/or
- iv) a certificate IV in fitness trained individual with at least 10 years FTE experience within the exercise & sports science industry**.

** Under extenuating circumstances¹ the supervision of students working with apparently healthy clients may be completed by an individual with a certificate 4 in fitness who has at least ten years (full time equivalent) experience in exercise delivery. The supervisor will be required to have received an induction*** into student supervision. This requirement will be reviewed by ESSA by August 2012 and academic units are advised that this is potentially an interim measure to allow students currently in programs to achieve this practicum requirement. These changes come into effect on 1 September 2010 and will be applied to students completing this practicum experience after this time.

¹. Extenuating circumstances include an inability to obtain a University trained professional.

***The induction into student supervision can be completed by the Academic Unit and should comprise elements such as expectations of the university, one-on-one supervision of students, and guidelines on conflict resolution and evaluation. In addition, ESSA is preparing an online Induction Package that may also be used.

Date	Hours	Site and description of services (keywords)	Supervisor	Supervisor signature	Student Signature
Example					
1/12/08	4	National academy of sport Conducted a biomechanical analysis of professional discus thrower. Assisted with the writing of the report which was provided to the athlete's coach.			

Note : You MUST NOT provide any personal or identifying information for any clients here. Clients' rights to privacy and confidentiality must be protected at all times. You must attach signed supervisor's details to this logbook.

Section J - Clinical Practicum Reference Form

Reference for

Dear Colleague,

The above applicant has applied for Graduate Entry membership with Exercise and Sports Science Australia (ESSA) Requirements of this membership include a minimum of 140 hours practicum with apparently healthy clients.

Could you please complete the following form based on your experience with the above applicant:

Skills and Experience

In the following table, please provide evidence of the practicum you have gained in the relevant area of apparently healthy clients: (expand boxes where necessary)

Breakdown of Practicum hours (a minimum total of 140 hours)	Total hours and dates*	Evidence of specific roles and duties completed	Site / Location				Name and signature of referee
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Minimum of 60% (at least 84 hours) for face to face delivery of exercise services				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Maximum of 35% (up to 49 hours) for preparation for face to face delivery, observation and other activities related to the scope of practice of AEPs				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Maximum of 5% (up to 7 hours) for administrative tasks				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Clinical supervisor: student ratios may be up to 1:5, with the proviso that there must be some 1:1 contact for each placement.

Declaration: (To be completed by each referee listed in the table above)

I certify that the information supplied is true and correct

Signature Date

Title Name

Background in exercise physiology (brief summary only): I'm an AEP

Phone Fax

Email

Appendix A – Study areas and essential knowledge and skills criteria

ESSA considers all nine study areas and knowledge and skills criteria as outlined below to be important components of your university study in exercise and sports science. If you wish to make the case that you have satisfied a study area outside of your university studies, then you must provide evidence of how you have gained the relevant knowledge and skills. Evidence may be in the form of a signed letter (on company letterhead) from an employer or supervisor. In a situation where a study area or knowledge and skills criteria within the study area have not been satisfied, ESSA may require that further study and or experience is completed before full membership will be granted.

Please do not attach the following pages to your application

Area 1: Biomechanics and functional anatomy	
Have knowledge of human anatomy and biomechanics to devise safe and effective fitness programs, improve athletes' performance, recognise and correct improper technique during physical activity, prevent injuries and regain physical fitness after injury.	
Knowledge	
1.1	Describe the basic structure of bone, skeletal muscle and connective tissues.
1.2	Describe the basic structures of cardiovascular, nervous and respiratory systems.
1.3	Describe the major bones, muscle groups and tendons involved in gross human movement.
1.4	Describe the different types of joints in the body, and factors that determine range of motion in diarthrodial joints.
1.5	Describe the actions of the major skeletal muscle groups.
1.6	Describe movement of the trunk and extremities in the three planes: sagittal, frontal and horizontal.
1.7	Be familiar with the SI system of units and use appropriate units to quantify biomechanical parameters.
1.8	Explain the relationships between angular and linear displacement, velocity and acceleration.
1.9	Identify and describe the effects of factors governing projectile trajectory.
1.10	Distinguish between average and instantaneous quantities and identify circumstances under which each is a quantity of interest.
1.11	Describe and distinguish angular motion from rectilinear and curvilinear motion.
1.12	Explain the terms 'absolute' and 'relative' angles.
1.13	Describe Newton's laws of motion and gravitation and describe illustrations of the laws.
1.14	Explain what factors affect friction and discuss the role of friction in daily activities and sports.
1.15	Explain the terms 'impulse' and 'momentum' and the relationships between them.
1.16	Explain what factors govern the outcome of a collision between two bodies.
1.17	Describe the inter-relationships among mechanical work, power, and energy.
1.18	Explain the concept of leverage within the human body and describe the mechanical advantages associated with different types of levers.
1.19	Explain the term 'centre of gravity' and describe the significance of centre of gravity location in the human body.
1.20	Describe the relationship between factors such as centre of gravity, base of support, balance and stability.
1.21	Describe the term 'torque', explain the methods used to quantify resultant torques, and identify the factors that affect resultant joint torques.
1.22	Describe the angular analogues of mass, force, momentum and impulse.
1.23	Explain the mechanisms that occur when changes in the configuration of a rotating airborne body can produce changes in the body's angular velocity.
1.24	Describe the angular analogues of Newton's Laws of motion.
1.25	Explain the term 'centripetal force'.
1.26	Explain the ways in which the composition and flow characteristics of a fluid affect fluid forces.
1.27	Explain the term 'buoyancy' and discuss the variables that determine whether a human body will float.
1.28	Explain the term 'drag', identify the components of drag and discuss the factors that affect the magnitude of each component.
1.29	Explain the term 'lift' and explain the ways in which it can be generated.
1.30	Explain the work–energy relationship.

Area 1: Biomechanics and functional anatomy	
1.31	Explain the different methods used to determine body segment parameters for calculating centre of mass.
1.32	Describe the patterns of temporal, kinematic and kinetic variables that are commonly assessed by clinical gait analyses.
1.33	Describe the patterns of muscle action observed for normal and pathological gait patterns.
1.34	Describe the stages in the normative development of gait and give approximate ages at which they usually occur.
1.35	Describe the major changes in gait patterns that occur in the elderly and in those with common pathological conditions.
1.36	Explain how muscular weakness, fatigue and/or neurological disorders may affect the biomechanics of movement.
1.37	Describe how materials and structures respond to loading (compression, tension, bending, shear and torsion), including uniaxial and multi-axial loads.
1.38	Explain the terms 'stress' and 'strain', 'modulus of elasticity' and 'fracture toughness'.
1.39	Describe the relationships between tissue properties and force, and impulse and energy.
1.40	Describe how the biomechanical properties of tissues and structures change with adaptations to load, disuse, overuse, nutrition, aging and other factors.
1.41	Describe how various intrinsic and extrinsic factors interact and contribute to injuries.
1.42	Describe how tissues respond to injury via inflammation, repair and remodelling processes.
Skills	
1.43	Demonstrate an ability to analyse common exercise movements according to biomechanical principles and identify muscle groups involved in each.
1.44	Demonstrate an ability to collect kinematic data.
1.45	Demonstrate an ability to calculate velocity and acceleration using the first central difference method.
1.46	Demonstrate an ability to calculate the area under a parameter–time curve.
1.47	Demonstrate knowledge of the three equations of constant acceleration.
1.48	Demonstrate the ability to solve quantitative problems involving angular kinematic quantities, and the relationships between angular and linear kinematic quantities.
1.49	Demonstrate the ability to represent the external forces acting on the human body by way of a free body diagram.
1.50	Demonstrate the ability to calculate the centre of mass for both an individual segment and the entire body from two-dimensional kinematic data.
1.51	Demonstrate the ability to solve quantitative problems related to kinetic concepts.
1.52	Demonstrate the ability to solve quantitative problems relating to the factors that cause or modify angular motion.
1.53	Demonstrate the ability to quantitatively analyse gait using basic temporal, kinematic and kinetic procedures.
1.54	Demonstrate the ability to use basic isokinetic dynamometer procedures for assessing and quantifying musculoskeletal function.
1.55	Demonstrate the ability to develop appropriate movement measures, including the interfacing of various monitoring devices to assess the performance of any specific movement pattern.
1.56	Using biomechanical principles, demonstrate the ability to identify movement patterns and potential risks of injury associated with common exercise equipment, such as resistance equipment (free, pin and hydraulic weights), stationary bicycles, stair-climbing machines and rowing machines.
1.57	Demonstrate the ability to measure and analyse the injury mechanisms associated with particular types of tissue injury.
1.58	Demonstrate the ability to select appropriate methods to control and modify inflammatory, reparative and remodelling phases of tissue responses to injury.
1.59	Demonstrate the ability to evaluate the rate of progress and efficacy of treatments

Area 2: Exercise physiology

Understand the physiological responses to exercise and training and know how to use this knowledge to develop effective programs that encourage individuals to incorporate regular physical activity into a healthy lifestyle.

Knowledge

2.1 Describe the acute cardiovascular and respiratory responses to exercise of increasing intensity, including normal and abnormal responses of heart rate, stroke volume, cardiac output, arteriovenous oxygen difference, pulmonary ventilation, tidal volume, respiratory rate, and systolic and diastolic blood pressure.

2.2 Describe the effects of different types of exercise training on the cardiovascular and respiratory responses listed above.

2.3 Describe the basic anatomy and functioning of the heart related to cardiac output and blood flow, cardiac pathways of nerve conduction, and electrical activity.

2.4 Describe the macroscopic and molecular structure of muscle tissue, including the mechanisms and metabolic requirements of muscle contraction.

2.5 Describe the physiological and metabolic characteristics of human skeletal muscle fibre types.

2.6 Describe the biochemical pathways by which fat, carbohydrate and proteins substrates are catabolised to produce energy during exercise of varying intensity and duration.

2.7 Explain the regulation of energy metabolism in skeletal and cardiac muscle during and after exercise.

2.8 Describe the relative contributions of aerobic and anaerobic respiration during exercise of varying intensity, including the metabolic and physiological mechanisms related to the concepts of lactate, ventilatory and anaerobic thresholds.

2.9 Define the metabolic, hormonal, physiological and neural factors limiting exercise capacity during activity of varying form (ie endurance, resistance and anaerobic), intensity and duration, and their inter-relationships.

2.10 Describe the acute metabolic, hormonal, muscular (skeletal and cardiac) and neural responses to exercise of varying form, intensity and duration.

2.11 Describe the chronic metabolic, hormonal, muscular (skeletal and cardiac) and neural adaptations to exercise of varying form, intensity and duration.

2.12 Explain how the metabolic, hormonal, muscular (skeletal and cardiac) and neural adaptations that occur in response to regular exercise affect health-related factors, such as risk factors for cardiovascular disease, non-insulin dependent diabetes mellitus, cancer and osteoporosis.

2.13 Describe the physiological principles and biochemical pathways related to muscular fatigue and muscle soreness during and after exercise.

2.14 Describe the principles of overload, frequency, duration and intensity related to endurance and resistance exercise training.

2.15 Explain the physiological and metabolic responses to detraining.

2.16 Describe the signs, causes and contributing factors related to overtraining syndrome.

2.17 Describe the positive and negative effects of various ergogenic aids on exercise performance and general health, including the effects of creatine, bicarbonate, glycerol loading, anabolic steroids, autologous blood transfusion ('blood doping'), caffeine and exogenously administered amino acids, erythropoietin, and growth hormone.

2.18 Describe the physiological mechanisms explaining gender differences in exercise responses, adaptations and performance.

2.19 Explain the physiological training responses of the female exerciser, specifically as related to reproductive function and pregnancy and the effect of menstrual cycle phase on sport performance.

2.20 Describe the physiological mechanisms related to thermoregulation during exercise, and the physiological adaptations that occur as a consequence of chronic hot and cold exposure.

2.21 Describe the regulation of fluid homeostasis during exercise and optimal methods for fluid replacement before, during and after exercise.

2.22 Describe the physiological, metabolic and biochemical responses to actual or simulated altitude and implications for exercise performance and training at altitude.

2.23 Describe the acute and chronic effects of exercise on the immune system.

2.24 Describe how nutrition can influence exercise performance, recovery and physiological adaptations.

Skills

2.25 Demonstrate the ability to administer and interpret results from basic physiological tests of exercise capacity/fitness, including assessment of VO_2 max; anaerobic threshold submaximal estimation of VO_2 max; anaerobic exercise capacity; and muscular strength, power, endurance and flexibility.

2.26 Demonstrate an ability to calculate energy expenditure of various exercise, sporting and occupational tasks, including the issue of economy of movement.

2.27 Demonstrate an ability to calculate age-predicted maximal heart rate (APMHR), heart rate reserve, and target heart rate ranges using APMHR and heart rate reserve methods, and describe limitations of the use of heart rate measures of exercise intensity.

2.28 Demonstrate an ability to administer and interpret basic lung function tests (vital capacity, FEV_1 , $\text{FEV}_{1\%}$, PEFr).

2.29 Demonstrate an ability to administer standard exercise field tests, such as sprints, shuttle runs, and other sport-specific tests.

Area 3: Human growth, development and ageing

Understand how age, gender, culture, socioeconomic status and developmental stages may each influence the individual's exercise capacity and motivation to participate in regular physical activity; and how physical activity, in turn, may influence growth and development.

Knowledge

3.1 Describe the concept and measures of growth, maturation and development.

3.2 Describe changes in the neuromuscular, skeletal, cardiorespiratory and endocrine systems that occur throughout the lifespan.

3.3 Describe changes in endurance and anaerobic exercise capacity, coordination and muscular strength, endurance and power, and flexibility that occur throughout the lifespan.

3.4 Describe common musculoskeletal and cardiovascular problems that occur with increasing age and their effects on exercise capacity.

3.5 Describe age-related changes in the acute responses to endurance and resistance exercise.

3.6 Explain how adaptations to various training programs may change throughout the lifespan; for example, the effects of resistance training and aerobic-based training on components of body composition (muscle, bone and fat).

3.7 Explain the extent to which regular exercise through out the lifespan, or exercise at given points during the lifecycle, may modulate changes in the cardiovascular, musculoskeletal, neuromuscular and endocrine systems seen in the sedentary ageing population.

3.8 Describe the maternal changes of pregnancy and the effects of exercise on the mother and foetus.

Skills

3.9 Demonstrate an ability to select appropriate fitness tests or modify standard protocols to accommodate children, pregnant women and older adults.

3.10 Demonstrate an ability to select appropriate fitness tests or modify standard protocols to accommodate specific musculoskeletal problems that occur in older individuals.

3.11 Demonstrate an ability to promote and prescribe safe and appropriate physical activity and training (endurance and resistance) programs for children and adolescents.

3.12 Demonstrate an ability to prescribe safe and appropriate training programs for the older individual (with and without musculoskeletal disorders) so that functional independence and wellbeing may be maintained.

Area 4: Exercise, health and disease

Understand the relationships between physical activity, sedentary behaviours and lifestyle-related diseases, such as cardiovascular disease, obesity, diabetes mellitus, asthma, osteoporosis and osteoarthritis.

Knowledge

4.1 Describe risk factors for lifestyle-related diseases, identifying which are primary, secondary, modifiable and nonmodifiable.

4.2 Describe epidemiological evidence supporting the roles for exercise and physical activity participation in the prevention of lifestyle-related diseases.

4.3 Describe the specific effects of exercise and physical activity on risk factors for lifestyle-related diseases.

4.4 Describe the dose–response relationships for exercise and physical activity interventions on lifestyle-related outcomes.

4.5 Describe recommended levels for indicators of health, such as blood lipids, blood pressure, blood glucose and body composition.

4.6 Describe the pathophysiological process of atherosclerosis, and possible mechanisms by which exercise may intervene in this process.

4.7 Describe the negative impacts of sedentary behaviours on risk factors for lifestyle-related diseases.

Skills

4.8 Demonstrate an ability to identify risk factors for metabolic, respiratory, cardiovascular and musculoskeletal diseases that require consultation with a medical practitioner before participating in, or changing, a physical activity program.

4.9 Demonstrate an ability to apply and interpret screening tools to determine the suitability of exercise and physical activity interventions for individuals with lifestyle-related diseases.

Area 5: Health, fitness and performance assessment

Have the ability to perform pre-participation screening, risk appraisal, and exercise and performance assessments.

Knowledge

5.1 Use published tools to determine whether a given individual requires medical examination before, or medical supervision during, fitness testing.

5.2 Describe absolute and relative contraindications to fitness testing or participation in exercise or physical activity.

5.3 Describe criteria to terminate commonly used fitness tests.

5.4 Explain how fitness test results may be influenced by factors such as subject anxiety, ambient temperature, dehydration or prior exercise.

5.5 Describe the assumptions and limitations of body composition assessment, fitness and performance testing.

5.6 Describe the physiological bases for tests of VO_2 max and submaximal estimation of VO_2 max, body composition, muscular strength, endurance and flexibility.

5.7 Describe the effects of commonly prescribed medication that may influence the heart rate, blood pressure and electrocardiographic responses to exercise.

5.8 Explain the mechanisms underlying abnormal electrocardiographic responses to exercise of varying duration and intensity.

Skills

5.9 Demonstrate an ability to obtain pre-participation screening information and appraise risk using this information.

5.10 Demonstrate a knowledge of, and ability to use, a range of body composition measures to service athletes, apparently healthy and obese individuals.

5.11 Demonstrate an ability to administer and interpret basic physiological tests of exercise capacity and fitness, including assessment of VO_2 max thresholds; submaximal estimations of VO_2 max; high-intensity exercise capacity; and muscular strength, power, endurance and flexibility.

5.12 Demonstrate an ability to interpret results of each test listed above, comparing results with established norms and reporting these values to the individual tested.

5.13 Demonstrate an ability to calibrate equipment used in exercise physiology, such as gas and lactate analysers and various ergometers.

5.14 Demonstrate an ability to discuss accuracy and limitations of instrumentation in the interpretation of test results.

5.15 Demonstrate an ability to measure heart rate, blood pressure and rating of perceived exertion before, during, and after submaximal fitness tests.

5.16 Demonstrate an ability to use information from fitness tests for designing exercise interventions for a given individual.

5.17 Modify standard or adopt appropriate fitness tests for special groups, such as children, older adults, pregnant women, athletes, or those with diseases or conditions such as osteoarthritis and asthma.

5.18 Demonstrate an ability to obtain a 12-lead ECG recording at rest and during exercise up to maximal, and calculate heart rate from the ECG.

Area 6: Exercise programming and prescription

Have the ability to develop individualised exercise prescriptions.

Knowledge

6.1 Describe intensity, duration, frequency and type of exercise recommended for health-related benefits in apparently healthy and low-risk individuals.

6.2 Describe the relationship between exercise heart rate, work rate and rating of perceived exertion.

6.3 Describe precautions, modifications and other factors to consider when prescribing exercise programs for symptomatic individuals.

6.4 Describe the different components of, and appropriate exercises to be included in, an exercise program (ie warm-up, conditioning and cool-down phases).

6.5 Explain the different stages of an exercise program (ie initial, improvement and maintenance).

6.6 Describe signs of excessive exercise strain during exercise, which may indicate the need for:

- (1) a change in the exercise prescription
- (2) stopping a given individual during an exercise program.

6.7 Describe common errors in body alignment and movement mechanics during exercise.

6.8 Explain the role of muscular flexibility exercises in exercise prescription.

6.9 Describe the principles of resistance training.

6.10 Using the scientific literature to demonstrate an understanding of current theories relating to endurance and resistance training.

6.11 Describe the advantages and disadvantages of various types of equipment used in circuit and resistance training.

6.12 Describe appropriate work–rest intervals for circuit and interval training programs, emphasising:

- (1) aerobic conditioning
- (2) muscular strength and power
- (3) muscular endurance.

Skills

6.13 Demonstrate an ability to recognise when and where to refer client for further professional advice.

6.14 Demonstrate an ability to use visual analogue scales (eg rating of perceived exercise) to gauge exercise intensity.

6.15 Demonstrate an ability to calculate target heart rate using:

- (1) heart rate reserve
- (2) simple percentage of age-predicted maximum heart rate.

6.16 Demonstrate an ability to monitor heart rate and blood pressure before, during and following exercise.

6.17 Demonstrate an ability to calculate and set work rate on a Monark bike during exercise.

6.18 Demonstrate an ability to write an exercise prescription for apparently healthy and low-risk individual for:

- (1) loss of excessive body fat
- (2) increasing endurance exercise capacity
- (3) increasing muscular strength.

6.19 Demonstrate an ability to design and implement a group exercise program in community and gymnasium contexts.

6.20 Demonstrate an ability to design and implement a group exercise program that takes account of various fitness levels.

6.21 Demonstrate an ability to design and implement a group exercise program to improve flexibility.

6.22 Demonstrate an ability to identify improper and unsafe exercises, and prescribe appropriate substitutions for these exercises.

Area 7: Exercise behaviour/Exercise and sport psychology

An understanding of the many physiological, psychological, social and environmental factors influencing participation and adherence to a physically active lifestyle.

Knowledge

7.1 Describe the factors that influence and predict exercise adoption and/or involvement in physical activity.

7.2 Describe the factors that influence and predict exercise adherence.

7.3 Describe the research literature on the theories related to improving exercise adherence and sustaining a physically active lifestyle.

7.4 Describe the research literature on effective strategies to increase exercise adoption and adherence.

7.5 Describe the research literature on positive and negative exercise addiction.

7.6 Describe the evidence related to exercise and mental wellbeing of individuals and groups.

Skills

7.7 Demonstrate an ability to use basic counselling and communication skills to motivate individuals to adopt and adhere to an exercise and physical activity program.

7.8 Demonstrate an ability to use behavioural modification strategies to increase exercise adherence throughout the lifespan.

7.9 Demonstrate an ability to recognise when and how to refer a client for further professional intervention and/or counselling.

Area 8: Nutrition, health and body composition

Have the ability to combine general nutritional principles with exercise advice to increase the effectiveness of their health and wellbeing interventions.

Knowledge

8.1 Describe the dietary guidelines and the recommended servings of the core food groups recommended by the National Health and Medical Research Council.

8.2 Describe the physiological functions of vitamins and minerals.

8.3 Explain the relationship between energy balance and control of body composition.

8.4 Describe the aetiology of obesity.

8.5 Define obesity and its comorbidities.

8.6 Describe the research literature on the effectiveness of exercise alone, diet alone, and diet and exercise combination in controlling body mass and fat levels and distribution.

8.7 Describe the recommended rate of loss of body mass and understand the potential risks of inappropriate diets and rapid weight loss.

8.8 Explain the relationship between body mass, body fat and fat distribution and risk factors for certain diseases, such as cardiovascular disease, cancer, osteoarthritis, non-insulin dependent diabetes mellitus, hypertension, and hyperlipidemia.

8.9 Describe the blood lipoprotein fractions and the research literature related to the role of diet and exercise in controlling blood lipids.

8.10 Describe the research literature related to the role of diet and exercise in the control of blood pressure, blood glucose and insulin resistance.

8.11 Explain the potential risks and benefits of nutrition supplements and ergogenic aids for athletes.

8.12 Describe the use of appropriate beverages for fluid and carbohydrate maintenance before, during and following exercise.

8.13 Describe the strengths, weaknesses and limitations of commonly used methods for measuring and analysing dietary intake.

8.14 Describe diet-related situations in which referral to an accredited practicing dietician (APD) or medical practitioner is required.

8.15 Be familiar with the *Joint Position Statement* of ESSA and Dieticians Association of Australia in the context of referrals to an APD.

Skills

8.16 Demonstrate understanding of how individual daily energy requirements can be approximated, and the limitations of approximation methods.

8.17 Demonstrate an ability to use public health recommendations (eg dietary guidelines) for Australian adults to provide general nutrition advice to promote achieving or maintaining a healthy body weight.

8.18 Demonstrate an understanding of the nutritional, health and psychological risks of common fad or popular diets.

8.19 Demonstrate an ability to calculate body mass index (BMI) and measure waist circumference, and relate these to recommended values for men and women.

8.20 Demonstrate an ability to use BMI, waist circumference, body composition estimates and other indices to determine an appropriate rate of loss of body mass or fat for a given individual.

8.21 Demonstrate an ability to prescribe exercise programs to reduce body mass and fat levels.

8.22 Demonstrate an ability to prescribe resistance exercise programs used to increase resting metabolic rate.

8.23 Demonstrate an understanding of behavioural modification and other strategies to help clients to incorporate and adhere to appropriate strategies that support achieving or maintaining a healthy body mass.

8.24 Demonstrate an ability to conduct anthropometric profiling.

8.25 Demonstrate an understanding of the recommended public health ranges for weight or body fat levels and the associated risks and benefits of diet and weight-loss programs commonly advertised to the community.

Area 9: Motor control/motor learning/skill acquisition

Understand movement control, movement learning, movement development and movement disorders.

Knowledge

Movement control

The knowledge base in this area includes understanding the neural, physiological and cognitive bases for controlling movement. This unit contains the foundation knowledge upon which the movement learning, development and disorder areas are based.

9.1 Describe the principles of action potentials and neural transmission.

9.2 Describe the major divisions of the central and peripheral nervous systems.

9.3 Describe the major efferent and afferent pathways that connect the central and peripheral nervous system.

9.4 Describe the innervation of muscles (efferent and afferent nerves).

9.5 Describe the organisation of muscles based on motor units and fibre type.

9.6 Describe the principles of muscle recruitment — Henneman's size principle.

9.7 Describe to the factors that determine the mechanical outcomes of muscle activation (eg muscle length, velocity of contraction, contribution of passive elements, muscle history and rate of neural activation).

9.8 Explain the relationship between muscle contraction, force, moment arm and joint torque.

9.9 Describe the patterns of muscle action observed between agonist and antagonist muscle groups during slow and fast movements.

9.10 Explain how uni and biarticular muscles are used to control movement.

9.11 Explain the terms 'proprioception' and 'kinaesthesia'.

9.12 Describe the major somatosensory receptors for position and movement, the information they convey, and the major pathways that convey this information to the central nervous system.

9.13 Describe the vestibular apparatus and the information it conveys with respect to orientation and balance.

9.14 Describe the principles of posture and balance control.

9.15 Describe the organisation and function of the spinal cord. Use examples of reflexes (knee jerk, flexor withdrawal, cross-extensor reflect) to illustrate excitatory and inhibitory neural connections, and the function of interneurons.

9.16 Describe the organisation and function of the somatosensory and motor cortices.

9.17. Describe the major structural characteristics and functional roles of the cerebellum, basal ganglia and the brain stem in movement control.

9.18 Describe the visual apparatus and neural pathways.

9.19 Describe the major types of eye movements and the control of gaze including the vestibular ocular reflex.

9.20 Describe the neural and behavioural organisation of visually guided reaching movements; that is, how visual information is processed, how a movement is initiated, and how the movement is guided to its target.

9.21 Describe the distinction between open and closed-loop control models.

9.22 Describe and contrast the major theories and laws for simple movements (eg Fitts' law).

9.23 Describe reaction time processes and the informational and situational factors that determine reaction time.

9.24 Describe the neural organisation of locomotion. Include central pattern generators, brainstem areas and spinal cord organisation.

9.25 Explain what is meant by the degrees of freedom problem and the organisational principles of synergies or coordinate of structures.

Skills

9.26 Demonstrate an ability to use electromyographic procedures for assessing and quantifying muscle function.

9.27 Demonstrate an ability to measure reaction time tests.

9.28 Demonstrate an ability to evaluate posture and balance control.

The knowledge base in this area includes understanding the neural, physiological and cognitive changes that underpin the acquisition of movement skills.

Movement learning

Knowledge

9.29 Describe how movement outcomes are measured. Use spatial and temporal error measures.

9.30 Describe performance curves and their limitations. Include ceiling and floor effects.

9.31 Describe experimental transfer designs and how they are used to assess learning.

9.32 Describe warm-up decrement.

9.33 Describe intra and inter-individual variability of performance.

9.34 Describe the types of learning (eg visual, auditory, tactile), providing examples from movement skill acquisition (eg procedural versus declarative; implicit versus explicit).

9.35 Describe the major processes underlying the short and long-term retention of movement information.

9.36 Describe the cues for the recall and recognition of movement (eg context specificity, distance/location, vision/kinaesthesia).

9.37 Describe characteristics of the major stages that occur when movement skills are learnt.

9.38 Describe changes in attentional processes that occur when movement skills are learnt. Use examples of performance on secondary tasks.
9.39 Describe the perceptual changes that occur with skill learning by contrasting the perceptual skills and strategies of expert and novice performers.
9.40 Describe the decision-making changes that occur with skill learning by contrasting the decision-making skills and strategies of expert and novice performers.
9.41 Describe the electromyographic and kinematic changes that occur with skill acquisition.
9.42 Describe and contrast the principles of specificity and of transfer of movement learning.
9.43 Describe different types of feedback and their impact on movement learning.
9.44 Describe different types of practice (massed versus distributed; blocked versus random; constant versus variable) and their impact on learning.
9.45 Describe different methods of instruction that may be used when teaching motor skills (eg modelling, guidance, trial and error).
Skills
9.46 Demonstrate an ability to develop appropriate movement outcome measures to assess performance on any specific movement skill.
9.47 Demonstrate an ability to identify the perceptual, decision-making and motor responses required for a range of motor activities.
9.48 Demonstrate an awareness of methodologies that may be used to measure individual differences in perceiving, deciding and executing, with respect to motor skills.
9.49 Demonstrate an ability how a dual-task methodology could be used to examine the automaticity of skill learning.
9.50 Demonstrate the ability to structure training or practice sessions to maximise learning.
Movement development
9.51 Describe the general cephalocaudal and proximodistal principles of development.
9.52 Describe the notions of motor milestones and critical periods.
9.53 Describe the ages and stages involved in the normative development of fundamental motor skills, such as running and throwing.
9.54 Describe the major events in the development of the visual and kinesthetic system.
9.55 Describe primitive, postural and locomotor reflexes.
9.56 Describe the major developmental changes that occur in perception, decision-making and movement execution across the lifespan.
9.57 Describe the major changes in neural control that occur in the elderly.
9.58 Describe the major changes in information processing that occur in the elderly.
Movement disorders
9.59 Describe the changes in movement patterns and neural activity that accompany fatigue.
9.60 Describe changes in kinaesthetic sensitivity that can accompany soft tissue injuries.
9.61 Describe motor disorders and their neural origin; for example, apraxia, dysarthria, aphasia, dysmetria, ataxia and dyskinesia.
9.62 Describe the motor deficits that accompany common disorders of the somatosensory system, basal ganglia, cerebellum, and motor cortex (eg developmental coordination disorder, cerebral palsy, Parkinson's disease, stroke, spinal cord and acquired brain injury).