Sport and Exercise Science Modules for Visiting Students 2025/26

Sports and exercise science is a multidisciplinary subject about the health and science of physical activity. It encompasses various disciplines, including anatomy, biomechanics, physiology, psychology and nutrition, to understand how the body responds to exercise and how to enhance performance in sports. This field also examines the impact of sports on society and aims to apply scientific principles to improve athletic performance and overall health.

Level 4 modules are introductory in nature, though prior study of biology/chemistry is still useful for some modules. Level 5 and 6 modules sequentially build upon the level 4 material in more detail.

Please note that if you wish to take more than one LS* module from the Sports and Exercise Science modules listed below, then it must be from the same level to ensure that there are no timetable clashes.

Also, taking another LS* module from another subject isn't normally possible due to timetabling clashes.

Updated April 2025/PJW

Entry requirements: GPA of 2.75 or above (out of 4.0) or equivalent.

Pre-requisites:

- **Level 4:** prior study of biology/chemistry is required for some modules.
- **Level 5:** these modules (typically equivalent to junior-level in the US system, for instance) build upon level 4 courses and as such require prior evidence of successful completion of introductory sport and exercise science. Any further module-specific pre-requisites are clearly outlined in each module summary below.
- **Level 6:** these modules are much more specialised and require **substantial** prior study of sport and exercise science . Any further module-specific pre-requisites are clearly outlined in each module summary below.

Taught at: Penrhyn Road campus

Sport and Exercise Science Modules for Visiting Students 2025/26

KEY TO MODULE DESCRIPTORS
SUITABILITY OF MODULE FOR STUDENTS VISITING KU ON STUDY OPTION _____
1: Indicates module is suitable for students visiting KU on Study Option 1 (Whole Year)
2: Indicates module is suitable for students visiting KU on Study Option 2 (Autumn)
3: Indicates module is suitable for students visiting KU on Study Option 3 (Spring)

Notes:

1. *All modules are at undergraduate level.*
2. *Students enrolled on Study Option 1 are required to study the entire module.*
3. *whilst the University makes every effort to ensure that this information is correct at the time of updating (April 2025), it cannot accept responsibility for omissions or subsequent changes. Module availability and content may be subject to change, as part of the University's policy of continuous improvement and development.*
4. *Details of assessment for students enrolled on either Study Option 2 or 3 where provided are **indicative only** and may also be subject to change as part of the above policy.*

Sport and Exercise Science Modules for Visiting Students 2025/26

Modules:

MODULE CODE	LEVEL	MODULE TITLE	SUITABILITY KEY
LS4008	4	Sport and Exercise Psychology	1, 2, 3
LS4009	4	Functional Anatomy and Exercise Physiology	1, 2, 3
LS4010	4	The Science and Practice of Coaching	1, 2
LS4013	4	Introduction to Food and Nutrition	1, 2, 3
LS5013	5	Sport and Exercise Psychology II	1, 2, 3
LS5014	5	Health and Exercise Physiology	1, 2
LS5015	5	Analysis in Sport and Exercise	1, 2, 3
LS5019	5	Applied Nutrition	1, 2
LS6017	6	Exercise and Health Psychology	1, 2
LS6029	6	Performance Analysis in Sport	1, 2
LS6032	6	Public Health Nutrition	1, 2, 3

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

Module Code: LS4008

Module Title: Sport and Exercise Psychology

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 4

Prerequisites: Introductory university level psychology/biology useful

Suitability:

- Study Abroad/International Exchange students for Study Options 1, 2 and 3
- Not open to Erasmus students, as level 4.

Content:

This module will cover essential topics and concepts of sport and exercise psychology such as personality, motivation, anxiety and stress, as well as motor control and motor learning and methods used to conduct sport and exercise psychology research.

Overall topics:

- The growth and development of sport and exercise psychology as a discipline
- Methods used to conduct sport and exercise psychology research
- The role of the self in sport and exercise, how this develops and impacts upon wellbeing and
- performance
- The differing theories of personality development and the role it plays in sport and exercise
- The different perspectives on the motivation in sport and exercise and the influences this has
- on individuals and groups
- Theories of arousal, stress and anxiety and how they might impact upon sport/exercise
- environments
- The role of psychology in the uptake and maintenance of physical activity
- The role of exercise in maintaining/improving psychological health
- Competing perspectives pertaining to motor control and skill acquisition
- The role of perception and attention in the ability to learn and perform motor skills
- Types and classifications of different types of motor skills
- The role and functionality of memory and its impact on acquiring and performing sport skills
- The role of neurological systems in the control of human movement
- Differing approaches to understanding learning in the sports environment.

➢ **Autumn Semester topics:**

- Psychological Approaches

  - Biological
  - Behaviourist
  - Psychodynamic
  - Humanistic
  - Cognitive
- Coach-Athlete Relationships
- Group Dynamics
- Leadership
- Motor Control and Learning

➢ **Spring Semester topics:**

- Personality
- Motivation
- Arousal, Stress and Anxiety
- The role of the Self
- Introduction to Exercise Psychology

Teaching: weekly lectures and seminars

Assessment:

➢ Study Option **1**:

- Group assessment: podcast (15 mins max) (40%)
- 1,500-word essay (60%)

➢ Study Option **2**:

- Group assessment: podcast (15 mins max) (100%)

➢ Study Option **3**:

- 1,500-word essay (60%)

Note: methods of assessment are indicative only

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Module Code: LS4009

Module Title: Functional Anatomy and Exercise Physiology

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 4

Prerequisites: study of basic biology useful

Suitability:

- Study Options 1, 2, 3
- Not open to Erasmus students, as level 4

Content:

The module is designed to introduce the student to the fundamentals of functional anatomy and physiology, particularly the skeletal, neural, muscular, metabolic, respiratory and cardiovascular systems. The focus will be on the understanding of the biomechanics of movement and the physiological adjustments in response to the demands of sport and exercise.

Overall topics:

- The functional anatomy of the human body, its major regions and their surface landmarks.
- Types of joint found in the body, their structure and function. Relationship between joint stability and flexibility. Methods for assessing flexibility and use of data in exercise prescription.
- Bone and muscle structure at the microscopic level and how skeletal muscle is innervated to act.
- Functional anatomy of the neurological, muscular, cardiovascular and respiratory systems.
- The biomechanics of movement.
- Adjustments needed by the neurological, muscular, cardiovascular and respiratory systems to deliver demands made by exercise. Energy pathways/Acid/base balance, role of buffers.
- Introduction to a range of laboratory methods used for biomechanical and physiological analysis, e.g. spirometry, flexibility, ECG, body composition, respiratory exchange ratio, VO2
- max; length-tension and force velocity relations.

➢ **Autumn Semester topics: Functional Anatomy (Biomechanics)**

- Skeletal System
- The Appendicular Skeleton and Planes of Motion
- The Articular System
- Skeletal Anatomy
- The Muscular System
- Muscle Contractions (Electromyography)
- Hip and Knee
- Ankle and Foot

- Shoulder
- Spine
- Elbow and Forearm

➢ **Spring Semester topics: Exercise Physiology**

- Muscle function
- Cardiovascular system
- Nervous system
- Respiratory system
- Energy expenditure
- Maximal oxygen uptake
- Endocrine system
- Energy continuum
- Fatigue during exercise

Teaching: weekly lectures and practical sessions

Assessment:

➢ Study Option **1**:

- Practical exam (40%)
- Laboratory manual/workbook (60%)

➢ Study Option **2**:

- Practical exam (100%)

➢ Study Option **3**:

- Laboratory manual/workbook (100%)

Note: methods of assessment and weighting are indicative only

Last updated: 25/04/25 PJW

Module Code: LS4010

Module Title: The Science and Practice of Coaching

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 4

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

Prerequisites: None

Suitability:

- Study Options 1 and 2
- Not open to Erasmus students, as level 4

Content:

This module introduces theories related to coaching and leadership roles in sport and exercise, and it aims to create environments where students can develop their own practical competencies in related coaching and leadership skills. It also aims to provide students with the experiential basis necessary for them to appreciate and understand sport as an academic subject.

➢ **Autumn Semester:**

- Overview of the coaching process, introducing the coaching cycle and its critical components.
- Coaching Process
- Leadership Styles
- Learning Styles
- Coaching Children
- Coaching Styles
- Coaching Effectiveness
- Data Analysis
- Mental Health in Sport

Teaching: weekly lectures and practicals

Assessment:

➢ Study Option **1**:

- Coaching essay (10%)
- Coaching log (40%)
- Coaching practical (50%)

➢ Study Option **2**:

- Written assignment (50%)
- Practical assignment (50%)

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Module Code: LS4013

Module Title: Introduction to Food and Nutrition

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 4

Prerequisites: basic study of chemistry

Suitability:

- Study Options 1, 2 and 3

This module introduces students to the study and practice of human nutrition. The module focuses primarily on macronutrients and micronutrients but will also include water and alcohol. Other topics introduced as part of this module include the basic concepts that underpin energy and nitrogen balance, the derivation and application of dietary reference values, the study of food composition and food science. Students will also be introduced to the social functions of food and nutrition in society as well as basic applications of food science in everyday life.

➢ **Autumn Semester:**

- Introduction to the study of human nutrition and the role of a nutritionist;
- Factors which determine food choice in a variety of settings, e.g., historical, cultural, religious, practical, economical, psychological, habitual within different social groups; e.g. individuals, families, older people, institutions;
- Introduction To Food Cultures
- Introduction to Food Choices
- Food Availability - investigation of types of food available, how food is sold in the UK
- and changing shopping and cooking practices;
- Food advertising, labelling and claims
- Introduction to effects of gender, age & socioeconomic status on food choices
- Dietary carbohydrates, lipids and proteins: Classification, structure, sources, function, metabolic disposal; Energy
- Body composition compartments and measurement
- Alcohol: nutrient value; metabolism; interaction with other nutrients;
- Water

➢ **Spring Semester:**

- Sensory Properties of Food
- Food Composition Tables
- Dietary Reference Values (DRV)
- Fat Soluble Vitamins: A, D (E and K)
- Water Soluble Vitamins: B complex

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

- Water Soluble Vitamin C
- Calcium
- Phosphorus and Magnesium
- Sodium, Potassium, and Chloride
- Trace Elements
- Iron, Zinc

Teaching: lectures, workshops/seminars, tutorials and practicals

Assessment:

➢ Study Option **1**:

- Assignment 1: oral presentation (30%)
- Practical portfolio (three) (30%)
- exam (40%)

➢ Study Option **2**:

- Assignment 1: oral presentation
- Practical 1

➢ Study Option **3**:

- Practical portfolio
- exam

Note: methods of assessment and weighting are indicative only

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LEVEL 5 – INTERMEDIATE

Module Code: LS5013

Module Title: Sport and Exercise Psychology II

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 5

Prerequisites: completion of LS4008 Sport and Exercise Psychology or similar

Suitability: Study Options 1, 2, 3

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

Content:

The module seeks to enable students to further understand the psychological influences on human behaviour in sport and exercise environments. The module seeks to develop a breadth and depth of understanding of research, theory and methodologies in sport and exercise psychology. The module will discuss a range of topics in these which will be introduced within lectures, further examined within seminars and workshops, and supplemented with additional online material.

- **Autumn Semester:**

- Introduction to Anti-Doping
- Athlete Vulnerability I: Motives for doping and clean sport
- Motivation
- Choking
- the mechanisms and experience of burnout in athletes, and the psychological components of this
- process
- Sport Injury
- The development of aggression in sport contexts, incorporating different theoretical perspectives
- Mental toughness

- **Spring Semester:**

- benefits of exercise in the maintenance of psychological health and wellbeing, and the mechanisms by which this occurs
- Physical Activity Correlates and Inequalities
- Theories of exercise adoption and maintenance
- Exercise Psychology Interventions

Teaching: Lectures, tutorials, workshops and practical sessions/demonstrations

Assessment:

- Study Option **1**:

- Group presentation (20 minutes) (40%)
- 2000-word individual report (60%)

- Study Option **2**:

- Group presentation (20 minutes) (100%)

- Study Option **3**:

- 2000-word individual report (100%)

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

Note: methods of assessment are indicative only

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Module Code: LS5014

Module Title: Health and Exercise Physiology

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 5

Prerequisites: study of physiology at university level such as LS4009 or similar

Suitability: Study Options 1 and 2

Content:

This module covers the acute and chronic physiological changes induced by exercise and an understanding of cardio-respiratory health. This module will develop the students' application of exercise physiology to performance. The module will also enable students to apply the role of exercise and physical activity as a prescription therapy to clinical diseases. This module will further develop the student understanding by equipping them with the scientific skills to monitor and assess health, fitness and performance.

➢ **Autumn Semester: Exercise Physiology and Testing**

- Effects & Adaptation to Exercise
- Anthropometry & Body Composition
- Interactions of energy metabolism
- VO2max, Health and Performance
- The Anaerobic Threshold –Submaximal tests
- Hormone and endocrine function during exercise
- A Healthy Diet

➢ **Spring Semester: Exercise Prescription**

- Case Studies + Respiratory Health
- Metabolic Disease
- Cardiovascular Health and Physiology
- Masters Athletes & The Elderly

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

- The Youth Athlete
- Exercise Prescription - Aerobic Exercise & Flexibility
- Resistance Training + Periodisation
- Skeletal Muscle adaptations and DOMS

Teaching: weekly lectures, workshops and practicals

Assessment:

➢ Study Option **1**:

- Practical competency test 1 (50%)
- Practical competency test 2 (30%) and executive summary (20%)

➢ Study Option **2**:

- Practical competency test 1 (100%)

Note: methods of assessment and weighting are indicative only

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Module Code: LS5015

Module Title: Analysis in Sport and Exercise

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 5

Prerequisites: study of physiology at university level such as LS4009 or similar

Suitability: study options 1, 2, 3

Content:
The module introduces technical and tactical analysis of sport performance through a duel themes, performance analysis and biomechanical analysis. Performance analysis focuses on manual analysis techniques used to explore impactful metrics to aid in enhancing performance and informing the coaching cycle. Biomechanical analysis explores the key mathematical and physical concepts underlying the biomechanical analysis of sport and exercise. Both aspects aim to provide student with an appreciation of how the application of analytical data may be used to explain and enhance sporting performance and exercise movements.

➢ **Autumn Semester: Performance Analysis**

- Theory and methods of manual sports notation for both team and individual sports, with practical application of notational skills
- Theory and methods of automated sports notation for a range of sporting situations using computer based systems, with practical application of notational skills
- Application of notational analysis to coaching theory - analysis of coaching behaviour and feedback
- Interpretation of biomechanical and notational data, through collected data and review of scientific literature
- Enhancement of practical research skills and interpersonal skills through group-based practical data collection and analysis

➢ **Spring Semester: Biomechanics**

- Kinematic analysis of motion – physical concepts and theory relating to linear and angular motion, the equations of motion and projectile motion with reference to application in analysis of sport and exercise
- Kinetic analysis of motion – The effects of forces in sport and exercise, Newton's laws of motion, physical concepts and theory relating to linear and angular kinetics and conservation of momentum
- Analysis of sport and exercise movements – practical measurement of movement using video analysis, including setting up, capture, use of software and application of theory
- Interpretation of biomechanical and notational data, through collected data and review of scientific literature
- Enhancement of practical research skills and interpersonal skills through group-based practical data collection and analysis

Teaching: weekly lectures, workshops and practical sessions in the Crime Scene House

Assessment:

➢ Study Option **1**:

- Performance Analysis Poster (50%)
- Biomechanics coursework (50%)

➢ Study Option **2**:

- Performance Analysis Poster (100%)

➢ Study Option **3**:

- Biomechanics coursework (100%)

Note: methods of assessment and weighting are indicative only

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

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Module Code: LS5019

Module Title: Applied Nutrition

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 5

Prerequisites: university-level study of introductory nutrition such as LS4013 or similar

Suitability: study options **1** or **2**

Content:

This module applies basic nutrition knowledge delivered at introductory level (Introduction to Food and Nutrition – LS4013) to introduce students to dietary assessment methodology and how they are used depending on nutrients, groups and populations, and the role of nutrition across the lifespan.

➢ **Autumn Semester:**

- Aims and purposes of dietary assessment
- Study Design
- Methods used to measure dietary intake: recall methods, food diaries, weighed food intakes, duplicate diets
- Review of dietary survey methods used in nutritional surveys and in the nutritional assessment of groups throughout the lifespan, and the validity of these methods
- The use of food portion sizes, food tables and computerised food composition
- databases in dietary surveys
- Pre-conceptual nutrition - current guidelines and recommendations
- Nutritional considerations during pregnancy - dietary reference values, alcohol, use of supplements, effects of malnutrition on birth outcome and maternal health, diabetes.
- Infant feeding

➢ **Spring Semester:**

- Nutritional needs during childhood
- Nutritional considerations during adolescence and adulthood - eating disorders, iron nutrition, teenage pregnancy, overweight, obesity, osteoporosis, inequalities of health, needs of ethnic minority groups, salt intakes and hypertension
- Nutrition and the elderly - factors affecting nutritional status: physiological,

- psychological, practical and social, nutrition and dementia
- Obesity
- Osteoporosis

Teaching: weekly lectures, workshops and lab sessions

Assessment

➢ Study Option **1**:

- 1,500-word report (30%)
- 1,500-word essay (30%)
- Evaluation of literature (40%)

➢ Study Option **2**:

- 1,500-word report (50%)
- 1,500-word essay (50%)

Note: methods of assessment and weighting are indicative only

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Module Code: LS6017

Module Title: Exercise and Health Psychology

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 6

Prerequisites: university-level study of exercise psychology such as LS5013 or similar

Suitability: study options **1** or **2**

Content:

Exercise and health psychology focuses on the antecedents and consequences of exercise and health behaviours. This includes behaviours such as physical activity, sedentary behaviour, smoking and alcohol consumption. In this module we will look at how we can promote healthy habits and reduce unhealthy behaviours and look at the impact of these behaviours on psychological factors such as mental health.

➢ **Autumn Semester: Behaviour Change**

- Sedentary Behaviour and Physical Activity - Children and Adolescents
- Sedentary Behaviour and Physical Activity - Adults and Elderly People
- Alcohol Consumption
- Tobacco and Smoking
- Developing Interventions and Behaviour Change Programmes
- Evaluating Interventions

➢ **Spring Semester: Mental Health and Well-being**

- Introduction to Physical Activity and Mental Health
- Physical Activity and Mental Health: Adolescents
- Physical Activity and Mental Health: Older Adults
- Physical Activity and Mental Health: Depression
- Physical Activity and Mental Health: Anxiety
- Overtraining, Dependence and injury
- The Psychology of Eating Disorders

Teaching: weekly lectures, workshops and lab sessions

Assessment:

➢ Study Option **1**:

- Presentation (40%)
- 2,500-word essay (60%)

➢ Study Option **2**:

- Presentation (100%)

Note: methods of assessment and weighting are indicative only

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Module Code: LS6029

Module Title: Performance Analysis in Sport

Credits:

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

Level: 6

Prerequisites: university-level study of analysis in sport science such as LS5015 or similar

Suitability: study options **1** or **2**

Content:

This module develops skills gained at level five in LS5015 Analysis in Sport and Exercise and further enhances the role of performance analysis in sport. The module develops an applied application of performance analysis and how this supports the coaching cycle within a variety of sport. The module enhances the student's development of future skills associated with key employability attributes in performance analysis. The module will utilise a variety of methodological approaches to understand and enhance athletic performance.

Topics:

- The rationale and themes within performance analysis to allow for the development of clear, academically driven research.
- Analysis and interpretation of sports performance data. With clear knowledge being demonstrated regarding normative profiling and parametric and non-parametric statistical analysis.
- Methods of reliability measures used within the research area.
- Methods of manual and automated locomotive analysis. Examining current technological developments and their impact upon future research and applied analysis of sport.
- The most effective methods of reporting data from a variety of sources to allow for
- quick and effective understanding of analysis by academics, coaches, and athletes

➢ **Autumn Semester: Behaviour Change**

This semester aims to explore the academic theory underpinning notational analysis. The content of the module will critically evaluate the methods of data collection and the rigour in the academic research applied in the field of performance analysis. Some live performance analysis is carried out to explore the skill set needed to operate in professional sport.

Teaching: weekly lectures and practical sessions

Assessment:

➢ Study Option **1**:

- practical presentation (20%)
- lab report (40%)
- athlete load report (40%)

➢ Study Option **2**:

- practical presentation

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

- lab report

Note: methods of assessment and weighting are indicative only

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Module Code: LS6032

Module Title: Public Health Nutrition

Credits:
- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 6

Prerequisites: intermediate-level study of nutrition such as LS5019 or similar

Suitability: study options **1** or **2** or **3**

Content:

This module will develop students' understanding of the concepts, theories and practice of health promotion, focusing on diet & physical activity in developing and developed countries. It will examine theories of motivation, behaviour and strategies of health promotion. The role, influence and impact of policies on population and client groups will be examined. This module will also provide students with an understanding of nutritional issues in the developing world.

➢ **Autumn Semester: Developed Countries**

- Looking at the population: identifying those at risk
- Health Inequalities
- Models & theories in health promotion
- Where can we use health promotion? Looking at different settings
- Ethics & evaluation in health promotion
- Health promotion in physical activity & exercise
- Health behaviours related to physical activity
- Strategies for promoting physical activity in practice
- Approaches to public health priorities: 'nudge' vs. whole systems

➢ **Spring Semester: Developing Countries**

Study Option 1 = Whole Year
Study Option 2 = Autumn
Study Option 3 = Spring

- Key themes in nutrition in developing countries
- Hunger & food (in)security
- Nutritional assessment in developing countries
- Response to nutrition emergencies
- Maternal & child under nutrition
- Infant Feeding

Teaching: weekly lectures and workshops

Assessment:

➢ Study Option **1**:

- Developed countries proposal (1000 words) (10%)
- Developed countries intervention (2000 words) (40%)
- Developing countries (3000 words) (50%)

➢ Study Option **2**:

- Developed countries proposal (1000 words) (20%)
- Developed countries intervention (2000 words) (80%)

➢ Study Option **3**:

- Developing countries portfolio (3000 words) (50%)

Note: methods of assessment and weighting are indicative only

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