

MCAST MASTER OF SCIENCE IN EXERCISE AND SPORTS SCIENCE

CODE: UC7-E10-18
Launching February 2020

Entry Requisite: First degree in business; management; health; sports.



The Master of Science in Exercise and Sport Science presents a multidisciplinary focus to help learners understand the relationship between health and human performance. As an academic program, the Masters of Science will introduce translational research and provide essential foundations from the bases of physiology, biomechanics, motor behavior, and psychology. Using the social ecological approach to addressing the needs for health and human performance for the workforce in Malta, the program recognizes societal needs, introduces evidence-based strategies for intervention, and evaluates the impact of these services on health outcomes and productivity.

Learning Outcomes:

Upon successful completion of this Masters Programme the learners will be able to:

1. *Conduct a needs analysis to identify areas for improvement which benefit the individual, groups, and organizations seeking to promote improved human performance;*
2. *Understand advanced concepts of exercise physiology and exercise /sport psychology as it pertains to applied science;*
3. *Read and interpret research which supports best practices in exercise and sports science;*
4. *Design, write and orally present a plan for an exercise /wellness intervention;*
5. *Evaluate the effectiveness of an intervention using sound assessment principles;*
6. *Analyze individual and group sport training and physical activity programs to ensure that recognized standards of practice for exercise testing, exercise prescription and exercise leadership are followed;*

First Year (Semester 1 & 2: 30 ECTS) – Exit Point: Post Graduate Certificate

1. [Fundamentals of Exercise and Sports Science](#)
2. [Applied Psychology in Fitness, Exercise and Health](#)
3. [Exercise Physiology: Applications for Health and Human Performance](#)
4. [Research Methods in Exercise and Sports Science](#)
5. [Principles of Wellness Coaching](#)

Second Year (Semester 3 & 4: 30 ECTS) – Exit Point: Post Graduate Diploma

6. [Exercise Prescription and Therapy for Non-Communicable Diseases](#)
7. [Advanced Assessment and Interpretation for Human Performance](#)
8. [Advanced Sport Performance Training Techniques](#)
9. [Planning for Community-Level Interventions](#)
10. [Multidisciplinary Work in Exercise and Sports Science](#)

Third Year (Semester 5: 30 ECTS) – Final Exit: Masters

Dissertation

STUDY UNIT 1

Fundamentals of Exercise and Sports Science

MQF Level 7: Knowledge (Core)

6 ECTS

E-learning: No

Rationale

This unit is designed to provide an overview of current topics and issues in the field of Exercise and Sports Science. Learners will engage in discriminating inquiry with their peers to explore selected topics and to report on these topics in both written and oral reports. Emphasis will be placed on thorough understanding of current topics and adequate communication skills for all pre-service professionals. This unit will align with the Programme Learning Outcomes 2,3 and 4.

Learning Outcome

Upon completion of this unit learners will be able to:

1. Differentiate between the various sub-disciplines under the umbrella of Exercise and Sports Science;
2. Identify contemporary issues within the field of Exercise and Sports Science through in-depth research;
3. Justify evidence-based and opinion-based sources for methods to improve health and human performance;
4. Produce a comprehensive analysis of contemporary issues in Exercise and Sports Science;
5. Summarize and deliver a professional oral presentation of an analysis of a contemporary issue in Exercise and Sports Science;

STUDY UNIT 2

Applied Psychology in Fitness, Exercise and Health

MQF Level 7: Knowledge (Core)

6 ECTS

E-learning: No

Rationale

This study unit is designed to acquaint the learners with psychological factors that enhance or decrease the probability of adoption of positive health behaviours in relation to exercise and sports. In this unit learners will have the opportunity to explore in depth psychological determinants of healthy behaviours. The focus of this unit will be to establish the foundation to understanding why some individuals are successful with planned changes in behaviours and why others are not. The psychosocial models identified will be explored to provide a framework for planning interventions designed to increase compliance to physical activity and other healthy behaviours for participants in a variety of settings. This unit will align with the Programme Learning Outcomes 2, 3, 4, and 6.

Learning Outcomes

Upon completion of this unit learners will be able to:

1. Appraise the differences between the various sub-categories of exercise psychology;
2. Discuss the benefits of physical activity in the prevention and management of symptoms of various mental illnesses;
3. Recognize contemporary health behaviour theories or models that can be used to enhance the effectiveness of lifestyle intervention initiatives;
4. Appraise in a critical manner factors that have the highest impact on promoting exercise compliance and preventing exercise program dropout in different populations;
5. Apply contemporary models of behaviour change to plan interventions to given situations to promote positive lifestyle changes;

STUDY UNIT 3

Exercise Physiology: Applications for Health and Human Performance

MQF Level 7: Knowledge (Core)

6 ECTS

E-learning: No

Rationale

This study unit provide learners with comprehensive knowledge of the benefits of exercise across the lifespan and between genders. This study unit draws knowledge from the Exercise Physiology discipline and introduces applied science research findings, which have demonstrated the effectiveness of exercise in the promotion of health and the enhancement of human performance. Learners will be focusing on life-span adaptations, which can be applied to testing effectiveness of physical training for youth, older adults, and the elderly. In addition, differences between genders will be addressed in both performance and health-related issues as they pertain to training outcomes. Finally, the influence of environment such as heat, cold, altitude) on training outcomes will be addressed. This unit will align with Programme Learning Outcome 2.

Learning Outcomes

Upon completion of this course, students will be able to:

1. Determine adaptations that would be expected as a result of chronic exercise training on cardiovascular, pulmonary, metabolic, endocrine, and neuromuscular function;
2. Appraise the influence that stress temperature and environmental pressure has during training on the health and human performance of the individual;
3. Compare the adaptations from chronic exercise of youth and adolescents to that of healthy adults;
4. Compare the adaptations from chronic exercise of older adults to that of healthy adults;
5. Evaluate gender differences in human performance and training related issues;
6. Apply modifications to exercise training so as to benefit individuals of different ages and genders;

STUDY UNIT 4

Research Methods in Exercise and Sports Science

MQF Level 7: Skills (Core)

6 ECTS

E-learning: Yes

Rationale

The study unit introduces learners to different research methodologies conducted in the various disciplines of Exercise and Sport science. The learners will interpret findings from scientific journals and be able to evaluate the impact of this research on the standard practice in Exercise and Sports Science. In addition, ethical considerations regarding the use of human subjects and the management of data will be covered so as to allow learners to begin the process of scientific inquiry. The learner will use these skills in planning for their dissertation. This unit will align with Programme Learning Outcome 3.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Describe various research methodologies that can be used for a prospective research question
2. Design a research proposal based upon a research question;
3. Evaluate research findings in a concise format from a given article that relates to exercise and sports science;
4. Present concluding statements from a prospective study based upon interpretation of the findings;

STUDY UNIT 5

Principles of Wellness Coaching

MQF Level 7: Skills (Core)

6 ECTS

E-learning: Yes

Rationale

The field of Wellness Coaching is gaining popularity in various settings including allied healthcare . There is tremendous potential for Exercise and Sports Science professionals to employ wellness-coaching strategies to promote healthful behaviours among participants in the settings where they may be employed. The unit will allow learners to explore specific “coaching” techniques to foster more effective individual interactions with clients who can benefit from adopting healthy behaviours. This unit aligns with the Programme Learning Outcomes 1 and 3. Learners need to have completed Unit 2 to be able to follow this unit.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Explain multiple contemporary wellness models that can be applied within various settings;
2. Distinguish between various coaching models and determine the most appropriate for particular settings and situations;
3. Design a coaching agreement document that reflects industry guidelines;
4. Implement motivational interviewing techniques whilst working in a peer coaching scenario;
5. Apply principles of selected change models to address behaviour change goals presented in a case study;
6. Recognize opportunities for implementation of wellness coaching in allied health and other settings;
7. Identify opportunities to obtain advanced credentials and certifications as a wellness coach;

STUDY UNIT 6

Exercise Prescription and Therapy for Non-Communicable Diseases

MQF Level 7: Skills (Core)

6 ECTS

E-learning: No

Rationale

In this study unit, learners will engage in a thorough examination of the most prevalent non-communicable diseases, which account for nearly two thirds of deaths across the world. Learners can expect to study the pathophysiology of cardiovascular diseases, cancer, diabetes mellitus and pulmonary diseases. This foundation will allow learners to understand how fitness assessment, exercise prescription and exercise leadership techniques can be modified to address the needs of individuals living with these diseases. This unit will align with the Programme Learning Outcomes 4 and 6.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Summarize pathophysiological changes taking place within the major non-communicable diseases;
2. Differentiate between the needs of individuals with various chronic conditions and comorbidities in relation to exercise testing, prescription and leadership;
3. Develop an exercise testing, prescription and leadership approach, using established industry-standards for individuals with non-communicable diseases;
4. Appraise resources used that will allow the exercise and sports science specialist to understand the effects of common medications on exercise tolerance of individuals with non-communicable diseases;
5. Justify opportunities for exercise and sports science specialists who would like to specialize in work environments that cater individuals with non-communicable diseases;

STUDY UNIT 7

Advanced Assessment and Interpretation for Human Performance

MQF Level 7: Skills (Sport Specialization)

6 ECTS

E-learning: No

Rationale

The study unit provides a multidisciplinary approach to assessing the client using a variety of laboratory and field measures, which aids in the planning process for the development of human performance. Both movement analyses and physiological parameters will be evaluated to determine the demands of those engaging in physical performance. These measures will allow for physical profiling as well as provide a reference for establishing goals for inspiring athletes. This study unit builds upon basic skills in Sport Biomechanics and Physiology of Sport. This unit will align with the Programme Learning Outcomes 1 and 6.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Interpret a 'needs analysis' for performance in specific sports disciplines;
2. Evaluate an individual's movement patterns using 2D digital field measures during work performance;
3. Create a physical profile using the most suitable laboratory measures;
4. Interpret measurement data whilst evaluating the variance between individuals;
5. Plan training protocols and routines relevant for both coaches and sports scientists in different exercise and sport settings;

STUDY UNIT 8

Advanced Sport Performance Training Techniques

MQF Level 7: Skills (Sport Specialization)

6 ECTS

E-learning: No

Rationale

The study unit evaluates the contemporary sports training techniques and reviews research to support these practices. For sports trainers, the ability to “bridge-the-gap” between sport science and training methods is essential. Many new techniques are adopted without science-based evaluation using theoretical constructs. Building problem-solving skills to critique existing sport training techniques will allow the learner to evaluate the potential for testing these theories. This unit creates discussion and provides competency in planning research projects to evaluate contemporary sport training techniques. This unit will align with Programme Learning Outcome 4 and 6. Learners need to have completed Unit 7 to be able to follow this unit.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Judge and criticize current sport training techniques;
2. Compare training methods based upon level of competition and attributes of the athletes;
3. Recognize expected training outcomes based upon the athlete’s profile;
4. Appraise critically contemporary sport training techniques using published research;
5. Synthesize the effectiveness of contemporary sport training techniques;

STUDY UNIT 9

Planning for Community-Level Interventions

MQF Level 7: Competencies (Team Based Working)

6 ECTS

E-learning: Yes

Rationale

This study unit uses the social ecological approach to plan for interventions that are designed to have an impact on healthy behaviour at the community level. In addition, as part of the planning process, evaluation of existing environments and their impact on behaviour are addressed. This study unit builds competency in writing and presenting intervention strategies using sound practices. This unit will align with Programme Learning Outcomes 1 to 4.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Conduct a needs assessment of the work, leisure, or sport training environment of a community or organisation to plan an intervention;
2. Determine areas of highest priority for community or organisation level intervention using objective measures;
3. Identify existing resources which are accessible to the organization (s) or community;
4. Produce a proposal which includes a cost and benefit analysis of the intervention;
5. Present own intervention plan to the appropriate stakeholders;

STUDY UNIT 10

Multidisciplinary Work in Exercise and Sports Science

MQF Level 7: Competencies (Team Based Working)

6 ECTS

E-learning: See “Delivery Method”

Rationale

In this study unit, learners will be expected to seek opportunities to interact with appropriate stakeholders where Exercise and Sports Science professionals are employed. Application of information presented in other courses to real-world tasks in the workforce will enable learners to put theory into practice. Additionally, learners will be expected to work collaboratively with their peers to address contemporary problems faced by Exercise and Sports Science professionals, using a case-study approach. This unit will focus also on the exploration of industry trends and career options. Depending upon the setting selected for field work, this unit should align with program learning objectives 1 to 6.

Learning Outcomes

Upon completion of this unit, learners will be able to:

1. Determine how projected industry trends can affect a programme;
2. Evaluate professional activities encountered during internship or field work, using reflective practice;
3. Appraise appropriate sources where reliable information regarding industry trends can be found;
4. Identify career trends and opportunities for Exercise and Sports Science professionals;
5. Examine with peers the issues identified during field experience or internship work that can be enhanced;