VNIVERSITAT DE VALÈNCIA

Course Guide
42392 Applied research I

COURSE DATA

Data Subject	
Code	42392
Name	Applied research I
Cycle	Master's degree
ECTS Credits	12.0
Academic year	2017 - 2018

Study (s)

Degree	Center	Acad. year	Period
2178 - M.D. in Res. and Interv. in Physical Act. and Sport Sciences	Faculty of Physical Education and Sport Sciences	1	Annual

Subject-matter

Degree	Subject-matter	Character
2178 - M.D. in Res. and Interv. in Physical Act. and Sport Sciences	4 - Investigación Aplicada I	Obligatory

Coordination

Name	Department
BLASCO LAFARGA, MARIA CRISTINA	122 - Physical and Sports Education

SUMMARY

The module A-1, will provide knowledge of applied research in the context of physical exercise and health, and sports performance. We strives ways of research within the application related to athletic performance and health, considering different types of intervention depending on the objectives (athletic performance based on the characteristics of the different sports or physical activity in order to prevent certain diseases or improve the quality of life of the population, both child and adult population or elderly) and type of subjects (high performance athletes, sportsmen consolidated athletes beginners, children, adults, seniors, men, women, ...). The focus of the sessions are addressed to research and type of research methodologies and systems to be applied according to the objectives to be achieved with the studies to be carried out. The sessions cover approaches from different levels of performance and fitness, encouraging learning and use of appropriate methodologies based on the study to be performed.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

It is not necessary previous knowledge

OUTCOMES

2092 - M.U. en Invest. e Interv. CC Activi. Física y Deporte 10-V.1

- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- To be able to integrate knowledge and make complex judgments based on information that remains incomplete or limited, but include social and ethical responsibility reflections linked to the application of their knowledge and judgments, from a gender perspective.
- To understand and analyze the research being done in the context of exercise and health, physical education and sport, and sports performance and management of physical activity and sport.
- To apply knowledge and be able to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related Physical Activity and Sport Sciences.
- To adapt the design and methodology to the subject matter and research characteristics, as well as to interpret the results, discuss and develop clear and consistent conclusions.
- To conceive, design and develop applied research in one of the social contexts of physical activity and sport.
- To identify new problems related to physical activity and sport that can be studied through applied research.
- Conocer los principales modelos teóricos acerca de entrenamiento que integran los distintos ámbitos implicados en el rendimiento y la salud.
- To identify determinants in sports talent identification.
- To identify and analyze the main and current research lines on exercise as a tool for improving health and performance.
- To apply research and design work plans in real environments for performance and health.
- To know the functioning and usage of technological means to quantify variables related to performance and health.
- Conocer y aplicar diseños de investigación en un entorno de rendimiento y de mejora de la salud.

LEARNING OUTCOMES

- To know the main theoretical models on training in different areas involved in the performance and health.

- To identify determinants in sports talent identification.

- To identify and analyze the main research lines currently using exercise as a tool for improving health and performance.

- To apply research and design work plans in real environments and health training.

- To know and use technological means to quantify variables related to performance and health.

- To understand and apply research designs in the field of performance and health improving.

DESCRIPTION OF CONTENTS

1. UNIT 1: Systems of measurement and data collection.

1. Basic theory of measurement, collection and processing of information.
1.1 Terminology about measurement. How and what to measure.
1.2 Media and measurement methods in sports science.
1.3 Preparation and data reduction in digital signals.

2. Kineanthropometry and body composition assessment.
2.1 Rating of Kineanthropometry components.
2.2 Tools, techniques and anthropometric measurement protocols.

3. Basis and features of testing technologies in physical activity and sports sciences.

2. UNIT 2: Program planning, modelling and monitoring systems.

1. Biomechanics in the monitoring and program planning of Sports.
1.1 Tools for temporal analysis.
1.2 Tools for kinetic and kinematic analysis.

2. Program planning and monitoring systems under the bioenergetics approach:
2.1 Performance analysis in cardiovascular fitness: cardiorespiratory and metabolic testing.
2.2 Assessment of autonomic balance: the heart rate variability.
2.3 Laboratory testing vs. field tests.

3. Program planning and monitoring systems under the neuromuscular approach:
3.1 Loads assessment in Resistance Training programs. Maximal vs submaximal tests.
3.2 Loads assessment in Sports: rate of force development and explosive actions testing.
3.3 ROM and joint mobility assessment.

4. Notational analysis in the program planning and modelling of Sport training.

5. Program planning, modelling and periodization.

3. UNIT 3: Talent identification and other singularities of sport training in the distal stages of lifespan.

1. Singularities of Sport Training regarding the extremes of lifespan: childhood and the old age.

2. Researching on Talent Identification and Sport Performance improvement in Youth.
2.1 Research on anthropometry and psychophysiology in youngsters.
2.2 Research on training methodology and trainability in youth.
2.3 Research regarding Competition in the sport initiation stage.
2.4 Talent in sport: Identification and development.

3. Research regarding Sport Training in the Elderly.
3.1 Research on Anthropometry and Psychophysiology in Master Athletes.
3.2 Research on Training Methodology and trainability in Master Athletes.
3.3 Research regarding Competition in Master Athletes.

4. UNIT 4: Research in consolidated and high-performance athletes in Cyclic Sports.

1. Research in cyclic sports: types and limitations.

2. Identification of variables that affect the performance in cyclic sports.

3. Singularities of performance assessment and control in cyclic sports.

4. Singularities of training planning and modelling in cyclic sports.

5. UNIT 5: Research in consolidated and high-performance athletes in team sports and other acyclic modalities.

1. Research in team sports and acyclic modalities: Types and limitations.

2. Identification of variables that influence performance in team sports and other acyclic modalities.
2.1 The style of playing as a determinant factor.

3. Singularities of the performance assessment and control in team sports and other acyclic modalities.

4. Singularities of training planning and modelling in team sports and other acyclic modalities.

6. UNIT 6: Design and application of the tasks oriented to support the Coach.

1. The Technical model to analyse the Coach.
1.1 Personal characteristics of the coach.
1.2 Research on leadership.
1.3. Behavioural skills in Sports Coaches.
1.4 The Notational analysis in the study of the behaviour of the coach.
1.5 Intervention to improve the behaviour of the coach

2. The cognitive-reflexive model to analyse the Coach.
2.1 The Coaches reflexive capacity.
2.2 The Coaches motivations.
2.3 Interventions to improve the Coaches reflexive capacity and motivations.

3. Leadership and group dynamics.

4. Organizing and leading the competition.
4.1 Approaches and Styles in Competition.
4.2 Control of emotions and behaviours in competition.

7. UNIT 7: Update and research in physical activity and health in different areas: clinical or rehabilitative, preventive and wellness.

1. Introduction and factors that determine the quality of life.
1.1 The genetics and the environment.
1.2. SAS, psychosocial factors and lifestyle.

2. Effect of physical activity on the musculoskeletal system.
2.1 Effects on the osteoarticular system.
2.2 Effects on the neuromuscular system.
2.3 Biomechanics vs. prevention, diagnosis and rehabilitation of motor disorders.

3. Effect of physical activity on cardiovascular health.

4. Means and methods for improving physical capacities related to health.

5. Physical activity programs targeted to health.
5.1 Activities of strength and flexibility.
5.2 Aerobic activities, sports and recreation games.

6. Physical activity programs aimed at rehabilitation, prevention and wellness.
6.1 Introduction to the approach.
6.2 Parameters of health in general population.
6.3 Common diseases and their relation with Physical Activity and Sport.
6.4 Injury Prevention in the occasional practice of Physical Activity and Sport.

6.5 Sport and specific injuries.

8. TEMA 8: Dissenys dinvestigació aplicada i pràctiques en relació als continguts del mòdul.

1. Anàlisi d'impactes durant l'activitat física i l'esport.
2. Anàlisi de paràmetres biomecànics rellevants en el peu durant l'activitat física.
3. Anàlisi cinemàtic i cinètic en natació (velocitat intracicle, acceleració, i potència).
4. Anàlisi notacional.
5. Lestudi de la regulació autonòmica del cor en làmbit de la activitat física i lesport.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	63,00	100
Computer classroom practice	8,00	100
Classroom practices	4,00	100
Laboratory practices	3,00	100
Attendance at events and external activities	60,00	0
Development of group work	60,00	0
Development of individual work	60,00	0
Study and independent work	40,00	0
TOTAL	**298,00**	

TEACHING METHODOLOGY

Teaching methodologies and students’ tasks will depend on the type of activity developed:

- Expert presentations by teachers (lectures).

- Discussion in small and large groups of students with and without teacher intervention.

- Supervised work individually or in small groups, to perform searches in databases, portals and other sources of information.

- Study (oneself and guided).

- Presentations.

- Mentorship meetings.

EVALUATION

Assessment will be done through:

1) Practical cases, analysis and design of applied research, written exercises to assess knowledge, and/or activities during the lectures.

2) Preparation and participation in seminars and other theoretical or practical tasks.

REFERENCES

Basic

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