

**Τμήμα Επιστήμης, Φυσικής Αγωγής και Αθλητισμού (Σέρρες), ΑΠΘ**

**Πρόγραμμα Μεταπτυχιακών Σπουδών Κινησιολογία**

Μ2.4 Περιγράμματα μαθημάτων και διπλωματικής εργασίας (σύμφωνα με το υπόδειγμα της ΕΘΑΑΕ)-EN

15/Δεκέμβριος/2023

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# Semester Α

**Course Description Form**

**(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 001 | **SEMESTER** | 1 |
| **TITLE** | PSYCHOLOGY OF SPORT AND EXERCISE |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Reading Assigment |  |  |
| Project |  |  |
| Exams |  |  |

 |
|  |  | 7.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600223773 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| With successful completion of the module students should be able to: (a) explain the complexity of athletes' psychology in sport, and exercise participants' psychology in terms of exercise behavior (b) articulate the basic psychological theories and interventions in the area of sport and exercise psychology(c) interpret the psychological factors related to athletes' increased levels of motivation for sport participation(d) describe the psychological factors related to sports performance enhancement and individuals' motivation for exercise participation(e) devise strategies to achieve improved psychology for their athletes' athletic performance and exercise participants for their long term exercise involvement. |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking**Other* |
| Apply knowledge in practice; Retrieve, analyze/synthesize data and information with the use of necessary technologies; Adapt to new situations; Make decisions; Work autonomously; Work in an international context; Work in an interdisciplinary team; Generate new research ideas; Appreciate diversity and multiculturality; Demonstrate social, professional and ethical commitment and sensitivity to gender; Be critical and self-critical; Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| Introduction to sport and exercise psychology Psychology of exercise participation Self-determination theory and exercise behavior Achievement motivation and participation in sport Anxiety, positive psychology and sport performance Attention and concentration in sport Overtraining, psychological burnout and weight management in sport Psychology of injury rehabilitation Communication, group dynamics, and leadership in sport Applied sport psychology for performance enhancement. |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face, Distance learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Reading Assigment | 82 |
| Project | 52 |
| Exams | 2 |

 |
| Total  | 175 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Written exams (70%) Research article presentation (30%)*Assessment methods:*Written Exam with Short Answer Questions (Summative), Written Exam with Extended Answer Questions (Summative), Performance / Staging (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Biddle, S. J. H. (1995). European perspectives on exercise and sport psychology. Champaign, IL: Human Kinetics. Buckworth, J., & Dishman, R. K. (2002). Exercise psychology. Champaign, IL: Human Kinetics. Gill, D. (2000). Psychological dynamics of sport and exercise. Champaign, IL: Human Kinetics. Weinberg, R. S., & Gould, D. (1999). Foundations of sport and exercise psychology. Champaign, IL: Human Kinetics. Williams, J. (2001). Applied port psychology: Personal growth to peak performance. Mountain View, CA: Mayfield. Roberts, G. C. (2001) (Ed.) Advances in motivation in sport and exercise. Champaign, IL: Human Kinetics. Fox, K. R. (1997) (Ed.). The physical self: From motivation to well-being. Champaign, IL: Human Kinetics. Horn, T. S. (2002). Advances in sport psychology (2nd ed.). Champaign, IL: Human Kinetics. Singer, R. N., Hausenblas, H. A., & Janelle, S. M. (2001) (Eds.) Handbook of sport psychology (2nd ed.). New York: Wiley.*- Additional bibliography for study:* |

**Course Description Form**

**(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 002 | **SEMESTER** | 1 |
| **TITLE** | PRACTICAL APPLICATIONS IN EXERCISE PHYSIOLOGY AND EXERCISE TESTING |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Written assigments |  |  |
| Exams |  |  |

 |
|  |  | 8.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600223774 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| Upon successful completion of the course, students will be able to: -understand the biological adaptations caused by exercise to maximize human performance-recognize the contribution of measurement and evaluation to the achievement of specific educational goals and objectives of physical education-apply the basic principles of exercise physiology and testing in sports and physical education-describe the mechanism of the oxygen transport and consumption system during training-highlight the scientific application of exercise to improve health and physical performance-design exercise programs for the general and special population and training programs for athletes based on the principles of exercise physiology |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Work autonomously, Work in teams, Work in an international context, Work in an interdisciplinary team, Generate new research ideas, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| •Energy sources - Metabolism- Muscle work• Oxygen transportation and consumption system• Exercise-induced effects and adaptations of the respiratory muscles• Exercise-induced hypoxemia. Hemoglobin saturation curve• Muscle contraction - Electromechanical coupling• Cardiovascular system and exercise (theory)•Cardiovascular system and exercise - exercise testing (practice)•Ergogenic aids• Free Radicals - Antioxidants• Exercise in patients with chronic diseases I• Exercise in patients with chronic diseases II• Students oral presentations• Students oral presentations |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 36 |
| Laboratory Work | 3 |
| Reading Assigment | 109 |
| Written assigments | 50 |
| Exams | 2 |

 |
| Total  | 200 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Written final exams (70%) Written assignment (15%) Oral presentation of a research paper (15%)*Assessment methods:*Written Exam with Multiple Choice Questions (Formative, Summative), Written Exam with Short Answer Questions (Formative, Summative), Written Assignment (Formative, Summative), Performance / Staging (Formative, Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Κλεισούρας. Εργοφυσιολογία I, II. Ιατρικές εκδόσεις Πασχαλίδης. 2005*- Additional bibliography for study:*Σημειώσεις. Μελέτη και ανάλυση σχετικών άρθρων. |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 003 | **SEMESTER** | 1 |
| **TITLE** | STATISTICS |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Reading Assigment |  |  |
| Exams |  |  |
| Other / Others |  |  |

 |
|  |  | 7.0000 |
| **TYPE OF THE COURSE***backround, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600223775 |

**(2) LEARNING OUTCOMES**

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| --- |
| **Learning Outcomes** |
| Students are expected after the successful completion of the course: (i) to organize and summarize data numerically and graphically (categories of data/variables, measurement scales, histograms, tables, indices of central tendency and dispersion, description of frequency distributions, types of distributions ), (ii) to understand the connection of probability to inferential statistics (exploratory and null hypotheses, testing and interpretation of null hypothesis), (iv) to recognize when to use parametric and non-parametric statistical tests and which statistical test to use for quantitative and qualitative data, (v) to examine the relationship between two and more variables, create simple and multiple regression equation, compare two or more samples with one and two factors (t-test, one-way ANOVA, two-way ANOVA, post-hoc comparisons), (vi) to use statistical software (SPSS) to analyze data, (vii) to interpret results from SPSS tables (descriptive statistics, correlation, regression, comparison of two and more samples with parametric and non-parametric tests), (viii) to understand the fundamental principles and practice analyzing and interpreting qualitative data, (ix) to apply the knowledge they have acquired to their thesis. |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work autonomously, Design and manage projects, Demonstrate social, professional and ethical commitment and sensitivity to gender issues, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| - Introduction to statistics, Introduction in research methods - Basic statistical measures - Measures of central tendency, Normally distributed data, Introduction to SPSS - Hypothesis testing, Types of statistical errors, Statistical power, Significance levels - Critical value, Normal distributions, SPSS basics - Parametric tests/Comparing two groups: Independent samples tests- Parametric tests/Comparing two groups: Dependent samples tests– Parametric tests/Comparing > 2 groups: One- WAY ANOVA for independent groups– Parametric tests/Comparing > 2 groups: One- WAY ANOVA for dependent groups - Two-WAY ANOVAs - Non-parametric tests/Comparing two groups: Dependent and independent groups- Correlations,- Regression analysis, - Social sciences and statistical approaches |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Reading Assigment | 84 |
| Exams | 2 |
| Other / Others | 50 |

 |
| Total  | 175 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*The final grade is based on the written exam (final) at the end of the semester.*Assessment methods:*Written Exam with Multiple Choice Questions (Formative, Summative), Written Exam with Short Answer Questions (Formative, Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*1. Εφαρμογές της Στατιστικής στις Επιστήμες του Αθλητισμού και της Φυσικής Αγωγής με τη χρήση του SPSS 18, Παπαϊωάννου Αθανάσιος - Ζουρμπάνος Νικόλαος, Εκδόσεις: ΔΙΣΙΓΜΑ 2014.2. Στατιστικές Εφαρμογές Στην Αθλητική Επιστήμη με Παραδείγματα στο SPSS, Βαγενάς Κ. Γεώργιος, Εκδόσεις: ΤΖΙΟΛΑ 2019.*- Additional bibliography for study:* |

 **Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 004 | **SEMESTER** | 1 |
| **TITLE** | EXERCISE INDUCED NEUROMUSCULAR ADAPTATIONS |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Reading Assigment |  |  |
| Written assigments |  |  |
| Exams |  |  |

 |
|  |  | 8.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Knowledge Deepening / Consolidation |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction, Examination), English (Instruction, Examination), French (Instruction, Examination), Italian (Instruction, Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  | Yes |
| **URL:** | https://qa.auth.gr/class/1/600223776 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| Upon successful completion of this course the student will be able to:1. Understand the structure and function of the nervous and muscular system2. Identify central and peripheral adaptations after exercise intervention (training session, long-term adaptations, warm-up, etc.)3. Understand of the specificities of different ages (childhood, elderly)4. Use the methods to assess the function of the neuromuscular system5. Design appropriate protocols and to apply these methods, for example recording, process and presents electromyographic data6. Present methods and research findings in poster-teaser 2-minute form |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Make decisions, Work in teams, Work in an interdisciplinary team, Generate new research ideas, Design and manage projects, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| 1. Principles of muscle mechanics Basic knowledge of neuroanatomy and muscle mechanics. Contents: Motor unit structure, characteristics, recruiting order (Henneman principle). Types of muscular action. Force - Velocity and force - length relationship of the skeletal muscle. 2. Neuromechanical basis of kinesiology The role of motor neurons and sensory receptors. Contents: The alpha motor neurons. The muscle spindle, Golgi tendon organs and the other sensory receptors.3. Mechanism of muscular contraction Analysis of the chemical process of Stimulus and the mechanical effect of stimulation. Contents: The role of calcium. The sliding of myofilaments and the excitability of the cell membrane, The neuromuscular junction.4. Muscle Activation - Electromyography Description of the muscular activation and the factors affecting it. Contents: Recordings by surface or intramuscular electrodes. Signal processing. EMG to muscular tension, neuromuscular efficiency. 5. Muscle modeling and elastic energy Familiarization with muscle modeling Contents: The model of three components. Contractile component, elastic component in series, parallel elastic component. Storage and re-utilization of the elastic energy.6. Muscle stiffness, stretching and force variability Quantifying stiffness, stretching effects and stability training Contents: Increasing the stiffens of musculotendinous complex after eccentric exercise. The effects of passive stretching. Isometric stability, dynamic accuracy and relevance of the sports movement.7. Muscle fiber architecture Analysis of mechanical performance with respect to the pennation angle Contents: Pennation angle of fast and slow muscle fibers. Ultrasound to identifying the pennation angle. The effects of training.8. Co-activation of the antagonists and tension-regulating mechanism Understanding the function of motor neurons into agonist and antagonist muscles during maximal and submaximal contraction Contents: The role of the Golgi tendon organs and muscle spindle in the control of muscle integrity and protection of the joint.9. Spinal reflexes Learning the afferent pathways of the reflexes and the effects on muscle activation Contents: H-reflex and M-wave. Reflexes of trained and untrained muscles. The feedback from kinesthetic receptors.10. Fatigue Analysis of central and peripheral fatigue - evaluation indicators. Contents: Changes in EMG during fatigue. Neuromuscular transmitters. The concept of over-fatigue.11. Static and dynamic balance Posture and gait analysis. Parameters influencing the balance. Contents: Upright posture. Balance strategies. Rate of force development. Κinaesthesia.12. Aging and neuromuscular adaptations of training to the elderly. Training effects in the elderly Contents: Strength training and neural adaptations. Force variability and tremor. Death of motor units and its impact on motion variability.13. Neuromuscular electrostimulation Purpose: Involuntary muscle function and contraction with electrical stimulators. Contents: The reversal of the principle of recruitment of motor units. Monoarticular isometric strength training with neuromuscular electrostimulation. |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Reading Assigment | 84 |
| Written assigments | 75 |
| Exams | 2 |

 |
| Total  | 200 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*A. Final written examination (60%):1. multiple choice test,2. short answer questions,3. extended response questionsB. Preparation and presentation of group work: 25%C. Individual quizzes: 15% (3)*Assessment methods:*Written Exam with Multiple Choice Questions (Summative), Written Exam with Short Answer Questions (Summative), Written Exam with Extended Answer Questions (Summative), Oral Exams (Summative), Performance / Staging (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*1. Principles of neural sciences, KANDEL ER, SCHWARTZ JH, JESSELL TM (μετάφραση Νευροεπιστήμη και συμπεριφορά, 2008), Εκδόσεις Πανεπιστήμιο Κρήτης.2. Η Νευρομηχανικής της ανθρώπινης κίνησης, Roger M Enoka, μετάφραση - επιστημονική επιμέλεια: Αγγελούσης, Αμοιρίδης, Μπογδάνης, Τσιόκανος, Χατζητάκη3. Brunnstrom's κλινική κινησιολογία, L. SMITH, E. W. LEHMKUHL4. Μύες, νεύρα και κίνηση, Β. TYLDESLEY-Συναφή επιστημονικά περιοδικά: 1. Journal of Applied Physiology2. European Journal of Applied Physiology3. Journal of Neurophysiology 4. Journal of Electromyography and Kinesiology5. Journal of Biomechanics. |

# Semester Β

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 005 | **SEMESTER** | 2 |
| **TITLE** | PRACTICAL APPLICATIONS OF SPORT BIOMECHANICS |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Seminars |  |  |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Project |  |  |
| Written assigments |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228350 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| The aim of this course is that students:1. To design a biomechanics experiment2. To analyze biomechanical data 3. To interpret experimental data and to relate them with those of other studies 4. To write a scientific paper based on experimental data collected within the semester5. To present a scientific paper in wide audience |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Design and manage projects, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| 1.Introduction. Team organization. Project assignment.2. Organizing and carrying an experiment in biomechanics3-5. Laboratory "Refresh" sessions A. Isometric strength B. Force platformC.2-D analysis D. Muscle - Tendon Architecture E. Stretch - Shortening Cycle F. Electromyography 6. Experiment - Team 17. Experiment - Team 28. Experiment - Team 39. Experiment - Team 410. Experiment - Team 511. Complementary experiments 12. Writting a project 13. Team Tutorials |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Seminars | 9 |
| Laboratory Work | 25 |
| Reading Assigment | 26 |
| Project | 26 |
| Written assigments | 39 |

 |
| Total  | 125 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Students are divided in teams, each consisting of three members. Each team has to design and carry a small-scaled experiment using a minimum of three laboratory tools and analyze the results and writes a final report in manuscript format to be submitted by the end of the semester and presents the study at the end of the semester Assessment includes) Written paper (70%) b) Final presentation (30%)*Assessment methods:*Written Assignment (Formative, Summative), Performance / Staging (Formative, Summative), Laboratory Assignment (Formative, Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Κέλλης, Ε (2015), Αθλητική εμβιομηχανική: ΑΡΧΕΣ ΚΑΙ ΜΕΘΟΔΟΛΟΓΙΑ ΕΜΒΙΟΜΗΧΑΝΙΚΗΣ ΑΝΑΛΥΣΗΣ ΤΗΣ ΚΙΝΗΣΗΣ, Κάλλιπος, https://repository.kallipos.gr/handle/11419/4943De Luca, C. J. 1997. The use of surface electromyography in biomechanics. Journal of Applied Biomechanics. 13:1, 35-63. Narici, M. (1999). Human skeletal muscle architecture studied in vivo by non-invasive imaging techniques: functional significance and applications. Journal of Electromyography and Kinesiology, 9, 97-103.Zatsiorsky, V. M. 1998. Kinematics of Human Motion: Human Kinetics. Winter, D. A. 1990. Biomechanics and motor control of human movement. John Wiley & Sons.Κέλλης, Ε. Νευρομηχανικές Αρχές Αξιολόγησης της δύναμης. Εκδόσεις Τελέθριο, 2009*- Additional bibliography for study:*http://www.physics.usyd.edu.au/~cross/PUBLICATIONS/6.%20StandingForcePlate.PDFhttp://www.biomed.ntua.gr/Portals/1/chapter6\_hlektromuografia\_new.pdfhttp://www.physicsclassroom.com/Physics-Tutorial/1-D-Kinematicshttp://www.brianmac.co.uk/biomechanics.htmhttp://www.intmath.com/kinematics/ |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 006 | **SEMESTER** | 2 |
| **TITLE** | EVALUATION OF HUMAN PERFORMANCE AND TRAINING GUIDANCE |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Seminars |  |  |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Exams |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228351 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| The students are expected after the successful completion of the course: (i) to acquire the fundamental principles of coaching, (ii) to understand the fundamental principles of the assessment of physical abilities, (iii) to apply the principles for guiding and implementing the training process, (iv) to know the biological and physiological factors that affect physical abilities, (v) to become familiar with the laboratory and in the field tests to measure and evaluate the physical abilities of endurance, anaerobic capacity, speed, strength, flexibility, (vi) to be able to transfer the results of the assessment of physical abilities for the design, evaluation and implementation of exercise programs, endurance, anaerobic capacity, speed, strength, flexibility |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Work autonomously, Generate new research ideas, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| 1. Introduction-Theory of training, 2. Training load-Principles of training,3. Assessment and guidance of strength training, 4. Assessment and guidance of endurance training, 5. Evaluation and guidance of speed training, 6. Assessment and guidance of agility-flexibility training, 7. Assessment and coaching of adaptive skills training, 8. Evaluation and guidance of technique training, 9. Evaluation and guidance of tactical training, 10. Planning the training, 11. Practical applications of training programs 12. Oral Presentations, 13. Oral Presentations |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face, Distance learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 30 |
| Seminars | 24 |
| Laboratory Work | 9 |
| Reading Assigment | 60 |
| Exams | 2 |

 |
| Total  | 125 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:**Assessment methods:*Written Exam with Multiple Choice Questions (Summative), Written Exam with Short Answer Questions (Summative), Written Exam with Extended Answer Questions (Summative), Written Assignment (Formative), Performance / Staging (Formative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Υποχρεωτική Grosser N., Neumeier A. (1996). Αξιολόγηση και καθοδήγηση της προπόνησης. Θεσσαλονίκη: Σάλτο.Grosser N., Starischka St. (2000). Προπόνηση φυσικής κατάστασης. Θεσσαλονίκη: Σάλτο.Harre D. (1989). Προπονητική. Θεσσαλονίκη: Σάλτο. Letzelter M. (1988). Προπονητική. Θεσσαλονίκη: Σάλτο.Martin D., Carl K., Lehnertz K. (2000). Εγχειρίδιο Προπονητικής. Η σύνδεση της θεωρίας με την πράξη. Κομοτηνή: ΑλφάβητοΠροαιρετική Alter, M.J. (1992). Επιστήμη των μυϊκών διατάσεων Θεσσαλονίκη: Σάλτο. Alter, M.J. (1992). Stretching για κάθε άθλημα. Θεσσαλονίκη: Σάλτο. Baker D. (1996) Improving vertical jump performance through general, special and specific strength training: A brief review. Journal of Strength and Conditioning Research. 10 (2), 131 - 136. Bompa, T.O. (1999). Periodization. Theory and Methodology of Training. Champaign, IL: Human Kinetics De Vries H. A. & Housh T.J. (1994). Physiology of Exercise. Dubuque: Brown & Benchmark. Dintiman G., Ward R. (1992). Ταχύτητα. Θεσσαλονίκη: Σάλτο. Eisenmann, J. & Malina, R. (2000). Body Size and Endurance Performance. In: R.J. Shephard & P.-O. Astrand (Ed.). Endurance in Sport. Blackell Science (pp 37-50). Grosser M. (1991). Προπόνηση ταχύτητας. Θεσσαλονίκη: Σάλτο.Harman A.E., Rosenstein T.M., Frykman N.P., Rosenstein M.R. (1990). The effects of arms and countermovement on vertical jumping. Medicine and Science in Sports and Exercise, (6), 825 - 833. Hollmann, W. & Hettinger, T (1990). Sportmedizin. Arbeits- und Trainings groundage. Stuttgart: Schattauer.Καμπάς Α. (2003). Συναρμοστικές ικανότητες: ανάπτυξη και προπόνηση. Θεσσαλονίκη: University Studio Press.Knebel K-P. (1993). Κοιλιακοί - Ραχιαίοι - Λειτουργική Γυμναστική. Θεσσαλονίκη: Σάλτο.Komi P.V. (Ed.) (1993). Strength and Power in Sport. Oxford: Blackwell Scientific Publications. Kraemer W.J. & Steven S.J. (1993). Ανάπτυξη δύναμης σε παιδιά και εφήβους. Μετάφραση. Θεσσαλονίκη: Σάλτο.Shephard R.J. & Astrand P.-O. (Eds.) (1992). Endurance in Sport. Oxford: Blackwell Scientific Publications. Schmidtbleicher D. (1987). Applying the theory of strength development. Track and Field Quarterly Review. 87 (3), 34 - 44. Plisk, S.S. & Gambetta, V. (1997). Tactical Metabolic Training: Part 1. Strength and Conditioning, 17, 3, 34-39. Schnabel G., Harre D. & Borde A. (1997). Trainingswissenschaft. Leistung-Training-Wettkampf. Berlin: Sportferlag. Wetter, T. & Dempsey, J. (2000). Pulmonary System and Endurance Exercise. In: R.J. Shephard & P.-O. Astrand (Ed.). Endurance in Sport. Blackell Science (pp 52-65).Winter A. D. (1990). Biomechanics and motor control of human movement. New York: John Wiley & Sons.Weineck J., (1994). Optimales Training. Balingen: Perimmed-spitta. |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 007 | **SEMESTER** | 2 |
| **TITLE** | PRINCIPLES OF KINESIOLOGY IN ADAPTED PHYSICAL ACTIVITY |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Written assigments |  |  |
| Exams |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***backround, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228352 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| The expected learning outcomes for the students after the successful completion of the course area) To understand the principles of the of Adapted Physical Education - Adapted Physical Activity science. b) To indulge in the principles of kinesiology and their links with changes in human movement as a consequence of disability c) To know the movement-related, cognitive, sensory and emotional states that need to be adapted in physical education classes and to organize exercise programs. d) To be able to implement individual education plans and individual exercise programs e) To be able to apply contemporary coaching methods in high level athletes performing in adapted sports. |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work autonomously, Work in teams, Work in an interdisciplinary team, Generate new research ideas, Appreciate diversity and multiculturality, Respect natural environment, Demonstrate social, professional and ethical commitment and sensitivity to gender issues, Be critical and self-critical |

**(3) COURSE CONTENT**

|  |
| --- |
| 1. Introduction to adapted physical education/ Activity 2. Motor development and assessment of individuals without disability and individuals with disabilities 3. Motor disabilities - Spinal Cord Injuries 4. Dietary support of athletes with spinal cord injuries5. Motor disabilities - Cerebral Palsy 6. Functional assessment of cerebral palsy children 7. Motor disabilities – amputation 8. Biomechanical analysis of running with prosthesis in lower limps |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 30 |
| Laboratory Work | 9 |
| Reading Assigment | 60 |
| Written assigments | 24 |
| Exams | 2 |

 |
| Total  | 125 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Participation in class (20%) Assignment (30%) Final exams (50%)*Assessment methods:*Written Exam with Short Answer Questions (Summative), Written Exam with Extended Answer Questions (Summative), Written Assignment (Summative), Performance / Staging (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*1. Sherrill, C. (2015). Προσαρμοσμένη Φυσική Δραστηριότητα, Αναψυχή και Σπορ. Επιμέλεια στη Ελληνική Χ. Ευαγγελινού. Έκδοση στην Ελληνική Broken Hill. 2. American College of Sports Medicine.(2016). ACSM's Exercise Management for people with Chronic Diseases and disabilities. Human Kinetics Publishers*- Additional bibliography for study:* |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 008 | **SEMESTER** | 2 |
| **TITLE** | FUNCTIONAL ANATOMY |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Reading Assigment |  |  |
| Written assigments |  |  |
| Exams |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228353 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| Students are expected upon the successive completion of the course: 1. To know the basic principles, functional anatomy terminology and relation between theoretical anatomical knowledge and practice 2. To understand the importance of functional anatomy and exercise participation and maximization of athletic performance 3. To acquire the theoretical and practical skills to perform independently specific laboratory and field tests motor conditions due to musculoskeletal disorders 4. Be able to interpret and evaluate about ways of intervening aiming at planning special exercise programs for improving functionality 5. To use the results of measurements to design training programs for team sports athletes |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Make decisions, Work autonomously, Work in teams, Work in an international context, Work in an interdisciplinary team, Generate new research ideas, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| Introduction in Functional Anatomy. Musculoskeletal system. Flats and movement shafts. Human movement research methods. Functional anatomy of the spine and chest joints. Functional anatomy of the shoulder girdle and elbow joints. Functional anatomy of the forearm, wrist and hand joints. Functional anatomy of the pelvic and hip joints. Functional anatomy of the knee joint. Functional anatomy of the ankle, tarsus and foot joints. Kinesiological analysis of posture and gait-foot arch. Kinesiological analysis of complex sports movements. Neuromuscular junction Physiology Studies presentation, review studies summary |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students, Use of ICT in Student Assessment*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Reading Assigment | 34 |
| Written assigments | 50 |
| Exams | 2 |

 |
| Total  | 125 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*After relevant student update at the teaching onset of the course, during the exam period a written part will be held combined with an oral part requiring brief contribution, during which the examinee’s critical capacity is evaluated. Also, co evaluation of an elaborated written study from the course is performed, combined with the study presentation and the whole active presence and participation in class.*Assessment methods:*Written Exam with Extended Answer Questions (Summative), Written Assignment (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*1)1)Η ΛΕΙΤΟΥΡΓΙΚΗ ΑΝΑΤΟΜΙΚΗ ΤΩΝ ΑΘΡΩΣΕΩΝ κωδικός 13257014 - Ι.Α.ΚΑΡΑNDJI, BROKEN HILL PUBLISHERS LTD,ΙΑΤΡΙΚΕΣ ΕΚΔΟΣΕΙΣ ΠΑΣΧΑΛΙΔΗ, 2001 , ΑΘΗΝΑ.2)ΑΝΑΤΟΜΙΚΗ ΤΟΥ ΑΝΘΡΩΠΟΥ: ΔΟΜΗ ΚΑΙ ΛΕΙΤΟΥΡΓΙΑ Ι,ΙΙ, . MΠΑΛΤΟΠΟΥΛΟΣ ΠΑΝΑΓΙΩΤΗΣ , ΙΑΤΡΙΚΕΣ ΕΚΔΟΣΕΙΣ Π.Χ.ΠΑΣΧΑΛΙΔΗ,2003, ΑΘΗΝΑ.*- Additional bibliography for study:*1)Hamilton, N & Luttgens K. (2002). Kinesiology: Scientific basis of human motion. McGraw-Hill.2)Soderberg, G (1997). Kinesiology. Application to Pathological Motion. Williams & Wilkins. |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 009 | **SEMESTER** | 2 |
| **TITLE** | RESEARCH METHODS |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Reading Assigment |  |  |
| Exams |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | General Foundation |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228354 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| After completion of the module, students will:1) Understand the fundamentals of research methodology 2) Know how to design a research study 3) Be able to write a scientific article 4) Be able to review a scientific article 5) Know basic ethical issues in research |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Make decisions, Work autonomously, Work in an international context, Be critical and self-critical |

**(3) COURSE CONTENT**

|  |
| --- |
| Introduction to research methods. The research process. Sampling methods. Validity and reliability Searching in databases. Types of experimental studies. Systematic review and meta-analysis. Qualitative research Non-experimental studies. Ethical issues in research. Writing a scientific article / Thesis Reviewing a scientific article. Interpretative issues in research |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Reading Assigment | 84 |
| Exams | 2 |

 |
| Total  | 125 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Written exams*Assessment methods:*Written Exam with Multiple Choice Questions (Summative), Written Exam with Short Answer Questions (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Thomas, J.R., & Nelson, J.K. (1996). Research methods in physical activity (3rd ed.). Champaign, Il: Human Kinetics. Janet, H. (2019). H έρευνα στις επιστήμες υγείας. Εκδ: Ιωάννης Κωνσταντάρας. Kviz F.J. (2023). Διεξαγωγή έρευνας στις επιστήμες υγείας. Εκδ: ΠροπομπόςΚαμπίτσης, Χ. (2004). Η έρευνα στις αθλητικές επιστήμες: Στατιστική ανάλυση – αξιολόγηση. Εκδ: Τσιαρτσιάνης: Θεσσαλονίκη. |

**Course Description Form**

 **(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOOL** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 010 | **SEMESTER** | 2 |
| **TITLE** | EXPERIMENTAL METHODS AND ANALYSIS IN KINESIOLOGY |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Lectures |  |  |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Exams |  |  |

 |
|  |  | 5.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development*  | Specific Foundation / Core |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:**  |  |
| **URL:** | https://qa.auth.gr/class/1/600228355 |

**(2) LEARNING OUTCOMES**

|  |
| --- |
| **Learning Outcomes** |
| Students are expected upon the successive completion of the course:• To understand the principles and process of experimental design and analysis in Kinesiology • To understand the methods of biomechanical analysis, kinematics, kinetics, Electromyography and Ultrasound analysis and be able to recognize the independent and dependent variables• Be able to search the bibliography the research questions • Be able to organize an experiment and connect with the methods of Biomechanics in order to solve the research question. • To decide which methodology and instrument to use to examine and collect the variables of the experiment • To demonstrate the ability to date the purpose, research hypothesis and control the zero question • Be able to conduct basic statistical tests which are suitable for the experiment • To apply the knowledge acquired in the course through their projects. |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Retrieve, analyze and synthesize data and information, with the use of necessary technologies* *Adapt to new situations* *Make decisions* *Work autonomously* *Work in teams* *Work in an international context* *Work in an interdisciplinary team* *Generate new research ideas* | *Design and manage projects**Appreciate diversity and multiculturality* *Respect natural environment**Demonstrate social, professional and ethical commitment and sensitivity to gender issues* *Be critical and self-critical**Advance free, creative and causative thinking* *……**Other…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Work autonomously, Work in teams, Generate new research ideas, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| 1.Basic Principles of Kinesiology - Kinematics2.Laboratory: Two-dimensional recording of: • Gait •Rising from a chair •Static Jump• Drop Jump• Ball throwing• Soccer kick 3. Laboratory PC lab: Analyzing kinematic data using APAS and maxtraq 4.Lecture: Principles of kinetics / The force plate 5.Vertical Jump analysis 6.Gait analysis and rising of a chair analysis 7.Analysis of multi-articular movements 8.Isometric strength assessment 9. Stretch Shortening Cycle 10. Balance analysis 11. Electromyography Recording and analysis using the Biopac MP100 unit 12. Muscle and tendon architecture 13. Laboratory: Analysis of EMG and Achilles tendon elongation using ultrasound and the Biopac System |

 **(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face, Distance learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Course Teaching, Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students*Description:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Activities*** | ***Workload*** |
|

|  |  |
| --- | --- |
| Lectures | 39 |
| Laboratory Work | 50 |
| Reading Assigment | 34 |
| Exams | 2 |

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| Total  | 125 |

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| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Final written exams in Application of biomechanical techniques to solve real experimental problems*Assessment methods:*Written Exam with Multiple Choice Questions (Summative), Written Exam with Short Answer Questions (Summative), Written Exam with Problem Solving (Summative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:*Κέλλης, Ε. Νευρομηχανικές Αρχές Αξιολόγησης της δύναμης. Εκδόσεις Τελέθριο, 2009Baumann, W. 1996. Βασικές αρχές της Βιομηχανικής των αθλητικών κινήσεων (μετάφραση-επιμέλεια: Χρ. Παπαδόπουλος). Eκδόσεις Σάλτο 1996,Παπαδόπουλος, Χ. 2005. Κινησιολογία Κλασικού Αθλητισμού, Εκδόσεις Τελέθριον. Αθήνα.Adrian, M., and J. M. Cooper. 1994. Biomechanics of human movement. 2nd ed. Dubuque, IA: Wm. C. Brown Communications. Cavanagh, P. R. 1990. Biomechanics of distance running. Human Kinetics Books. Dainty, D. A., and R. W. Norman. 1987. Standardizing biomechanical testing in sport. Champaign, IL: Human Kinetics. Delp, D., and S. Delp. 1989. Understanding human movement with computer graphics. Soma 3(3): 17-25.De Luca, C. J. 1997. The use of surface electromyography in biomechanics. Journal of Applied Biomechanics. 13:1, 35-63.Frederick, E. C. 1986. In search of the asymptote: Projecting the limits of human performance. International Journal of Sport Biomechanics 2: 1-5.Gowitzke, B. A. 1984. Muscles alive in sport. In Biomechanics: The 1984 Olympic Scientific Congress Proceedings, edited by M. Adrian and H. Deutsch. Eugene, OR: Microform Publications. Goldstein, H. 1965. Classical mechanics. Reading, MA: Addison-Wesley. Grabiner M. D. 1993. Current Issues in Biomechanics. Human Kinetics Publishers. Hamilton, N., and K. Luttgens. 2003. Κινησιολογία. Επιστημονική βάση της ανθρώπινης κίνησης (επιμέλεια: Γ. Γιόφτσος). Επιστημονικές Εκδόσεις Παρισιανού ΑΕ. Αθήνα.Loy, D. J., and A. S. Voloshin. 1991. Biomechanics of stair walking and jumping. Journal of Sports Sciences 9:1, 37-49. Murray, M. P., A. B. Drought, and R. C. Kory. 1964. Walking patterns of normal men. Journal of Bone and Joint Surgery 46A:3, 35-60. Murray, M. P., R. C. Kory, and S. B. Sepic. 1970. Walking patterns of normal women. Archive of Physical Medicine Rehabilitation 51:6, 37-50.Nigg, B. M., and W. Herzog. 1995. Biomechanics of the musculoskeletal system. John Wiley & Sons. Rose, J., and J. G. Gamble. 1994. Human walking. Baltimore: Williams & Wilkins. Synge, J.L., and B.A. Griffith. 1959. Principles of mechanics. New York: McGraw Hill. Vaughn, C. L. 1984. Computer simulation of human motion in sports biomechanics. Exercise and Sport Sciences Reviews 12: 373-416.Yeadon, M. R., and J. H. Challis. 1994. The future of performance-related sports biomechanics research. Journal of Sports Sciences 12: 3-32. Zatsiorsky, V. M., and V. L. Fortney. 1993. Sport biomechanics 2000. Journal of Sports Sciences 11:2, 79-83. Zatsiorsky, V. M. 1998. Kinematics of Human Motion: Human Kinetics. Winter, D. A. 1990. Biomechanics and motor control of human movement. John Wiley & Sons.*- Additional bibliography for study:* |

# Semester C

**Course Description Form**

**(1) GENERAL**

|  |  |
| --- | --- |
| **FACULTY** | Physical Education and Sport Science |
| **SCHOO** | Physical Education and Sport Science (Serres) |
| **CYCLE / LEVEL** | Postgraduate |
| **CODE** | 011 | **SEMESTER** | 3 |
| **TITLE** | **MASTER THESIS** |
| **Autonomous Didactic Activities** | **HOURS OF INSTRUCTION** | **ECTS** |
|

|  |  |  |
| --- | --- | --- |
| Laboratory Work |  |  |
| Reading Assigment |  |  |
| Field trips and participation in conferences / seminars / activities |  |  |
| Project |  |  |
| Written assigments |  |  |

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|  |  | 30.0000 |
| **TYPE OF THE COURSE***background, general knowledge, scientific*  *area, skills development* | Knowledge Deepening / Consolidation |
| **PREREQUISITES:** |  |
| **LANGUAGE OFINSTRUCTION AND EXAMINATION:** | Greek (Instruction,Examination) |
| **THE COURSE IS OFFERED TO EXCHANGED ERASMUS STUDENTS:** |  |
| **URL:** | https://qa.auth.gr/class/1/600245907 |

**(2) LEARNING OUTCOMES**

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| --- |
| **Learning Outcomes** |
| Upon successful completion of the course, the students: 1) will be able to search, select, analyze and synthesize bibliographic material in a specific scientific field and topic of Kinesiology, 2) will be able to organize the theoretical/bibliographic material and become familiar with a specific style of writing a scientific text, 3) will become familiar with the concept of plagiarism and its avoidance when presenting/reproducing the bibliographic data, 4) will be able to use and handle the citation of bibliographic references, 5) will be able to organize and perform experiments, and to collect experimental data, 6) will be able to analyze (statistical analysis) and interpret research/experimental data, and 6) will be able to organize and to present the results of their thesis to a wide audience. |
| **General Competences** |
| *Taking into account the generic competences that must be acquired by the graduates of AUTh (as they are described in the Diploma Supplement and presented as followed) which ones are intended by the course?* |
| *Αναζήτηση, ανάλυση και σύνθεση δεδομένων και πληροφοριών, με τη χρήση και των απαραίτητων τεχνολογιών* *Προσαρμογή σε νέες καταστάσεις* *Λήψη αποφάσεων* *Αυτόνομη εργασία* *Ομαδική εργασία* *Εργασία σε διεθνές περιβάλλον* *Εργασία σε διεπιστημονικό περιβάλλον* *Παράγωγή νέων ερευνητικών ιδεών*  | *Σχεδιασμός και διαχείριση έργων* *Σεβασμός στη διαφορετικότητα και στην πολυπολιτισμικότητα* *Σεβασμός στο φυσικό περιβάλλον* *Επίδειξη κοινωνικής, επαγγελματικής και ηθικής υπευθυνότητας και ευαισθησίας σε θέματα φύλου* *Άσκηση κριτικής και αυτοκριτικής* *Προαγωγή της ελεύθερης, δημιουργικής και επαγωγικής σκέψης**……**Άλλες…**…….* |
| Apply knowledge in practice, Retrieve, analyze and synthesize data and information, with the use of necessary technologies, Adapt to new situations, Make decisions, Work autonomously, Work in teams, Work in an interdisciplinary team, Generate new research ideas, Be critical and self-critical, Advance free, creative and causative thinking |

**(3) COURSE CONTENT**

|  |
| --- |
| The Master's Thesis aims at the preparation by the student of scientific research, with communication of its results, both in writing and orally, in accordance to rules/guidelines of the international scientific community. The student must review of the scientific bibliography, to conduct the research, to write the thesis and perform public oral presentation/defense of the proposal and the final results to the committee that evaluates the Master's Thesis.1) Selection and submission of the thesis topic, review of literature and the experimental protocol (the proposal),2) Public presentation of Master Thesis proposal (review of literature and the experimental protocol),3) Conduct the study,4) Write the Master Thesis and5) Present/Defend the Master Thesis before the three-member advisory committee. |

**(4) DIDACTIC AND LEARNING METHODS - ASSESSMENT**

|  |  |
| --- | --- |
| **MODE OF DELIVERY***Face to face, Distance Learning* | Face to face, Distance learning |
| **USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES***Use of ICT in Course Teaching, Laboratory Teaching, Communication with Students* | Use of ICT in Laboratory Teaching, Use of ICT in Communication with Students*Περιγραφή:* |
| **COURSE ORGANIZATION***Lectures, Seminars, Laboratory Work, Fieldwork, Reading Assignment, Tutorial, Internship, Clinical Practice, Artistic Workshop, Interactive Teaching in Information Center, Field trips and participation in conferences/seminars /activities, Project, Written assignments, Artistic creation, Other.* |

|  |  |
| --- | --- |
| ***Δραστηριότητα*** | ***Φόρτος Εργασίας Εξαμήνου*** |
|

|  |  |
| --- | --- |
| Laboratory Work | 120 |
| Reading Assigment | 200 |
| Field trips and participation in conferences / seminars / activities | 15 |
| Project | 200 |
| Written assigments | 215 |

 |
| Σύνολο Μαθήματος  | 750 |

 |
| **STUDENT ASSESSMENT***Description of the procedure**A, Assessment methods, Formative or Summative, Written Exam with Multiple Choice Questions, Written Exam with Short Answer Questions,* *Written Exam with Extended Answer Questions, Written Exam with Problem Solving, Written Assignment, Report, Oral Exams, Performance / Staging Laboratory Assignment, Clinical Examination of Patient, Artistic Performance, Other / Others* | *Description of the procedure:*Public presentation/defense of the Master Thesis before the three-member advisory committee. After the presentation/defense of the Master Thesis minutes are completed which includes the individual grade of each member of the Examining Committee. The average score is the final evaluation for the Master Thesis.*Assessment methods:*Written Assignment (Summative), Oral Exams (Summative), Performance / Staging (Summative), Labortatory Assignment (Formative) |

**(5) BIBLIOGRAPHY**

|  |
| --- |
| *- Course bibliography:**- Additional bibliography for study:*Relative Books, Published Manuscripts |

Master's Thesis Writing Outline/Guide

For a detailed guide to writing the master's thesis, see the address:

<https://kinesiology.phed-sr.auth.gr/sites/default/files/sygrafi_msc_dr_0_0.pdf>