

## COURSE OUTLINE

<b>RESPONSIBLE OF THE COURSE</b>	Alexandra Avloniti, Associate Professor D.P.E.S.S. – D.U.T.H.
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### 1. GENERAL

<b>SCHOOL</b>	PHYSICAL EDUCATION & SPORT SCIENCES		
<b>DEPARTMENT</b>	PHYSICAL EDUCATION & SPORT SCIENCES		
<b>LEVEL OF STUDIES</b>	6		
<b>COURSE CODE</b>	N050	<b>SEMESTER</b>	5 <sup>th</sup> & 7 <sup>th</sup>
<b>COURSE TITLE</b>	PHYSIOLOGICAL PRINCIPLES OF PEDIATRIC EXERCISE SCIENCE		
<b>TEACHING ACTIVITIES</b> <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>	<b>TEACHING HOURS PER WEEK</b>	<b>ECTS CREDITS</b>	
	2	3	
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
<b>COURSE TYPE</b> <i>Background, General Knowledge, Scientific Area, Skill Development</i>	Elective		
<b>PREREQUISITES:</b>	No		
<b>TEACHING &amp; EXAMINATION LANGUAGE:</b>	Greek English (Erasmus students)		
<b>COURSE OFFERED TO ERASMUS STUDENTS:</b>	Yes		
<b>COURSE URL:</b>	<a href="https://eclass.duth.gr/courses/177/">https://eclass.duth.gr/courses/177/</a>		

### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b> <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i>																
<p>This course is designed to provide students the fundamental concepts of paediatric exercise science. Describe how biological and physiological systems develop during childhood and adolescence and analyze how developmental physiology interacts with acute and chronic responses to exercise. Furthermore, this course aims for students to be able to design and implement training programs for performance development based on the physiological principles at the developmental stages.</p> <p>Upon the completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Identify how growth and maturation affect performance and influence responses to exercise in youth</li> <li>2. Appreciate how integrated training can be tailored to the needs and abilities of individual children and adolescents and design and implement safe and effective training programs</li> </ol>																
<p><b>General Skills</b> <i>Name the desirable general skills upon successful completion of the module</i></p> <table border="0"> <tr> <td><i>Search, analysis and synthesis of data and information, ICT Use</i></td> <td><i>Project design and management</i></td> </tr> <tr> <td><i>Adaptation to new situations</i></td> <td><i>Equity and Inclusion</i></td> </tr> <tr> <td><i>Decision making</i></td> <td><i>Respect for the natural environment</i></td> </tr> <tr> <td><i>Autonomous work</i></td> <td><i>Sustainability</i></td> </tr> <tr> <td><i>Teamwork</i></td> <td><i>Demonstration of social, professional and moral responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td><i>Working in an international environment</i></td> <td><i>Critical thinking</i></td> </tr> <tr> <td><i>Working in an interdisciplinary environment</i></td> <td><i>Promoting free, creative and inductive reasoning</i></td> </tr> <tr> <td><i>Production of new research ideas</i></td> <td></td> </tr> </table>	<i>Search, analysis and synthesis of data and information, ICT Use</i>	<i>Project design and management</i>	<i>Adaptation to new situations</i>	<i>Equity and Inclusion</i>	<i>Decision making</i>	<i>Respect for the natural environment</i>	<i>Autonomous work</i>	<i>Sustainability</i>	<i>Teamwork</i>	<i>Demonstration of social, professional and moral responsibility and sensitivity to gender issues</i>	<i>Working in an international environment</i>	<i>Critical thinking</i>	<i>Working in an interdisciplinary environment</i>	<i>Promoting free, creative and inductive reasoning</i>	<i>Production of new research ideas</i>	
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- Search, analysis and synthesis of data and information, ICT Use
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Project design and management
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Critical thinking
- Promoting free, creative and inductive reasoning

### 3. COURSE CONTENT

1. Introductory concepts: a) Growth, Maturation, Development, b) Chronological and Biological Age, c) Methods for measuring growth and maturation.
2. Nervous, endocrine system and exercise: a) Development of nervous and endocrine system, b) Acute and chronic response to exercise during childhood and adolescence.
3. Cardiopulmonary system and exercise: a) Development of cardiopulmonary system, b) Acute and chronic response to exercise during childhood and adolescence.
4. Muscle system and exercise: a) Development of muscle system, b) Acute and chronic response to exercise during childhood and adolescence.
5. Skeletal system and exercise: a) Development of Skeletal System, b) Acute and chronic response to exercise during childhood and adolescence.
6. Special issues in developmental exercise physiology: a) Thermoregulation, b) Immune function
7. Strength training during childhood: a) Strength development, b) trainability, c) detraining
8. Strength training during adolescence: a) Strength development, b) trainability, c) detraining
9. Endurance training: a) Endurance development, b) trainability, c) detraining
10. High intensity interval training: a) Endurance development, b) trainability, c) detraining
11. Power training (speed, agility, reactive strength): a) Power development, b) trainability, c) detraining
12. Flexibility training: a) Flexibility development, b) trainability, c) detraining
13. Long-Term Athletic Development

### 4. LEARNING & TEACHING METHODS - EVALUATION

<b>TEACHING METHOD</b> <i>Face to face, Distance learning, etc.</i>	Face to face Lectures as well as distance learning	
<b>USE OF INFORMATION &amp; COMMUNICATIONS TECHNOLOGY (ICT)</b> <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>	Use of ICT in Teaching	
<b>TEACHING ORGANIZATION</b> <i>The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research &amp; analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.  The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i>	<b>Activity</b>	<b>Workload/semester</b>
	Lectures	15
	Study and individual works	35
	Intermediate evaluation	25
	<b>Total</b>	<b>75</b>
<b>STUDENT EVALUATION</b> <i>Description of the evaluation process  Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report,</i>	<ol style="list-style-type: none"> <li>1. Intermediate written examination (20%)</li> <li>2. Written assignments (20%)</li> <li>3. Final written examination (60%)</li> </ol>	

*Clinical examination of a patient, Artistic interpretation, Other/Others*

*Please indicate all relevant information about the course assessment and how students are informed*

## 5. SUGGESTED BIBLIOGRAPHY

1. Kotzamanidis C. (2020). Child training health. Kyriakidis Bros Publications S.A., Thessaloniki.
2. Kraemer W.J., Fleck S.J. (1996). Strength Training for Young Athletes. Salto Publishers, Thessaloniki.
3. Faigenbaum A., Lloyd R., Oliver J. (2020). Essentials of Youth Fitness. American College of Sports Medicine, Human Kinetics.