

## COURSE OUTLINE

### 1. GENERAL

|                                                                                                                                                                                                                                                               |                                                                                                             |                         |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------|--------------|
| SCHOOL                                                                                                                                                                                                                                                        |                                                                                                             |                         |              |
| DEPARTMENT                                                                                                                                                                                                                                                    | DEPARTMENT OF PHYSICS                                                                                       |                         |              |
| LEVEL OF STUDIES                                                                                                                                                                                                                                              | ISCED level 6 – Bachelor's or equivalent level                                                              |                         |              |
| COURSE CODE                                                                                                                                                                                                                                                   | Y602-2023                                                                                                   | SEMESTER                | 6th Semester |
| COURSE TITLE                                                                                                                                                                                                                                                  | Econophysics                                                                                                |                         |              |
| TEACHING ACTIVITIES<br>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. |                                                                                                             | TEACHING HOURS PER WEEK | ECTS CREDITS |
|                                                                                                                                                                                                                                                               |                                                                                                             | 4                       | 6.0          |
| COURSE TYPE<br>Background, General Knowledge, Scientific Area, Skill Development                                                                                                                                                                              | Skill Development                                                                                           |                         |              |
| PREREQUISITES                                                                                                                                                                                                                                                 |                                                                                                             |                         |              |
| TEACHING & EXAMINATION LANGUAGE:                                                                                                                                                                                                                              | Greek and English                                                                                           |                         |              |
| COURSE OFFERED TO ERASMUS STUDENTS:                                                                                                                                                                                                                           | NO                                                                                                          |                         |              |
| COURSE URL:                                                                                                                                                                                                                                                   | <a href="https://eclass.emt.duth.gr/courses/PHYSICS258/">https://eclass.emt.duth.gr/courses/PHYSICS258/</a> |                         |              |

### 2. LEARNING OUTCOMES

|                                                                                                                                                                   |
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| Learning Outcomes<br>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course. |
| null                                                                                                                                                              |

## General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,  
ICT Use, Adaptation to new situations,  
Decision making,  
Autonomous work,  
Teamwork,  
Working in an international environment,  
Working in an interdisciplinary environment, Production of new research ideas

Project design and management  
Equity and Inclusion  
Respect for the natural environment  
Sustainability  
Demonstration of social, professional and moral responsibility and sensitivity to gender issues  
Critical thinking  
Promoting free, creative and inductive reasoning

Teamwork

## 3. COURSE CONTENT

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## 4. LEARNING & TEACHING METHODS - EVALUATION

| <b>TEACHING METHOD</b><br>Face to face, Distance learning, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                | Face to face                                                                                                                                                                                                                                                                                                                                                          |          |                   |          |    |                                   |    |                     |    |       |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------|----------|----|-----------------------------------|----|---------------------|----|-------|-----|
| <b>USE OF INFORMATION &amp; COMMUNICATIONS TECHNOLOGY (ICT)</b><br>Use of ICT in Teaching, in Laboratory Education, in Communication with students                                                                                                                                                                                                                                                                                                                                             | Use of ICT in Teaching                                                                                                                                                                                                                                                                                                                                                |          |                   |          |    |                                   |    |                     |    |       |     |
| <b>TEACHING ORGANIZATION</b><br>The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.<br><br>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards | <table border="1"> <thead> <tr> <th>Activity</th><th>Workload/semester</th></tr> </thead> <tbody> <tr> <td>Lectures</td><td>52</td></tr> <tr> <td>Bibliographic research &amp; analysis</td><td>53</td></tr> <tr> <td>Laboratory Exercise</td><td>20</td></tr> <tr> <td>Total</td><td>125</td></tr> </tbody> </table>                                                 | Activity | Workload/semester | Lectures | 52 | Bibliographic research & analysis | 53 | Laboratory Exercise | 20 | Total | 125 |
| Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Workload/semester                                                                                                                                                                                                                                                                                                                                                     |          |                   |          |    |                                   |    |                     |    |       |     |
| Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 52                                                                                                                                                                                                                                                                                                                                                                    |          |                   |          |    |                                   |    |                     |    |       |     |
| Bibliographic research & analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 53                                                                                                                                                                                                                                                                                                                                                                    |          |                   |          |    |                                   |    |                     |    |       |     |
| Laboratory Exercise                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20                                                                                                                                                                                                                                                                                                                                                                    |          |                   |          |    |                                   |    |                     |    |       |     |
| Total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 125                                                                                                                                                                                                                                                                                                                                                                   |          |                   |          |    |                                   |    |                     |    |       |     |
| <b>STUDENT EVALUATION</b><br>Description of the evaluation process<br><br>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, Clinical examination of a patient, Artistic interpretation, Other/Others<br><br>Please indicate all relevant information about the course                  | <b>Student evaluation languages</b><br>Greek<br>English<br><br><b>Method (Formative or Concluding)</b><br>Formative<br><br><b>Student evaluation methods</b><br>Written Assignment<br>or<br>Written Exam with Problem Solving<br>Written Exam with Short Answer Questions<br><br><div style="text-align: right;"> <b>Rate</b><br/> 100<br/> or<br/> 40<br/> 60 </div> |          |                   |          |    |                                   |    |                     |    |       |     |

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| assessment and how students are informed |  |
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## 5. Suggested Bibliography

An Introduction to Econophysics, R. Madegna, H.E. Stanley, Cambridge University Press, 2004.  
Classical Econophysics, W.P. Cockshott, A.F. Cottrel, G.J. Michaelson, I.P. Wright, V. Yacovenko, Routledge (Taylor and Francis).  
Econophysics and Sociophysics: Trends and Perspectives, B.K. Chakrabarti (ed.), Wiley-VCH, 2006.  
Economic Dynamics, R. Shone, Cambridge University Press, 2002.

Εύδοξος