

## COURSE OUTLINE: TIME SERIES ANALYSIS

### GENERAL

|                                                                                                                                                                                                                                                                       |                                                                 |                              |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------|----------------|
| <b>SCHOOL</b>                                                                                                                                                                                                                                                         | ECONOMICS AND BUSINESS                                          |                              |                |
| <b>ACADEMIC UNIT</b>                                                                                                                                                                                                                                                  | ECONOMICS                                                       |                              |                |
| <b>LEVEL OF STUDIES</b>                                                                                                                                                                                                                                               | UNDERGRADUATE                                                   |                              |                |
| <b>COURSE CODE</b>                                                                                                                                                                                                                                                    | ΜΠ801                                                           | <b>SEMESTER</b>              | 7th (Major B)  |
| <b>COURSE TITLE</b>                                                                                                                                                                                                                                                   | Time Series Analysis                                            |                              |                |
| <b>INSTRUCTOR(S)</b>                                                                                                                                                                                                                                                  | Asst. Professor A. Anagnostou                                   |                              |                |
| <b>INDEPENDENT TEACHING ACTIVITIES</b><br><i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i> |                                                                 | <b>WEEKLY TEACHING HOURS</b> | <b>CREDITS</b> |
|                                                                                                                                                                                                                                                                       |                                                                 | 3                            | 6              |
|                                                                                                                                                                                                                                                                       |                                                                 |                              |                |
|                                                                                                                                                                                                                                                                       |                                                                 |                              |                |
| <i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>                                                                                                                                              |                                                                 |                              |                |
| <b>COURSE TYPE</b><br><i>general background,<br/>special background,<br/>specialized general knowledge, skills development</i>                                                                                                                                        | Finance and Banking                                             |                              |                |
| <b>PREREQUISITE COURSES:</b>                                                                                                                                                                                                                                          | YES / NO                                                        |                              |                |
| <b>LANGUAGE OF INSTRUCTION</b><br><b>and</b><br><b>EXAMINATIONS:</b>                                                                                                                                                                                                  | Greek                                                           |                              |                |
| <b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>                                                                                                                                                                                                                      | No                                                              |                              |                |
| <b>COURSE WEBSITE (URL)</b>                                                                                                                                                                                                                                           | <a href="https://www.econ.uth.gr/">https://www.econ.uth.gr/</a> |                              |                |

### LEARNING OUTCOMES

#### Learning outcomes

*The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.*

*Consult Appendix A*

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon successful completion of the course, students will be able to:

1. interpret the causes and consequences of regional disparities;
2. calculate indicators of spatial concentration, specialization, and inequality;
3. use Eurostat, ELSTAT, and other regional datasets;
4. design and evaluate evidence-based regional policies;
5. present the results of a regional study clearly.

### **General Competences**

*Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?*

*Search for, analysis and synthesis of data and information, with the use of the necessary technology*

*Adapting to new situations*

*Decision-making*

*Working independently*

*Team work*

*Working in an international environment*

*Working in an interdisciplinary environment*

*Production of new research ideas*

*Project planning and management*

*Respect for difference and multiculturalism*

*Respect for the natural environment*

*Showing social, professional and ethical responsibility and*

*sensitivity to gender issues*

*Criticism and self-criticism*

*Production of free, creative and inductive thinking*

*.....*

*Others...*

*.....*

*Research, analysis, and synthesis of data and information, with a critical evaluation of findings.*

*Independent work and self-directed learning.*

*Evaluation and critical analysis of modern labor markets and the factors influencing their operation.*

*Formulation and assessment of policy proposals related to the labor market.*

*Exercise of critical thinking.*

*Promotion of free, creative, and inductive thinking.*

## SYLLABUS

The course examines the theories, methods, and tools used to understand spatial economic disparities and design regional policies. It connects economic theory with empirical techniques, real regional data, and policy applications in Greece and the European Union.

### Course aims and objectives

1. Understand the main theories of regional and spatial development.
2. Measure regional disparities, specialization, concentration, and convergence.
3. Analyze regional data and evaluate policy interventions.
4. Become familiar with the institutional framework of EU Cohesion Policy.

### Weekly course content

1. Introduction to regional science: space, regions, and development
2. Classical theories of location and regional growth
3. Growth poles, cumulative causation, and core-periphery theories
4. New Economic Geography and agglomeration economies
5. Regional data, NUTS classifications, and spatial units
6. Measuring regional disparities: dispersion, Gini, and Theil indices
7. Regional specialization and concentration: LQ, Herfindahl, and shift-share
8. Regional convergence: beta and sigma convergence
9. Input-output tables and regional multipliers
10. Spatial autocorrelation and introduction to spatial econometrics
11. EU Cohesion Policy and regional policy in Greece
12. Evaluation of regional programs and impact analysis
13. Presentation of applied studies and policy proposals

## TEACHING and LEARNING METHODS - EVALUATION

|                                                                                                                                             |                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DELIVERY</b><br><i>Face-to-face, Distance learning, etc.</i>                                                                             | Face-to-face                                                                                                                                                                                                                                           |
| <b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b><br><i>Use of ICT in teaching, laboratory education, communication with students</i> | <b>Use of the e-class electronic platform for posting:</b><br><b>(a) lecture materials, (b) announcements, (c) exercises, case studies, and relevant articles.</b><br>- <b>Utilization of electronic media for lecture presentations (PowerPoint).</b> |

| <p><b>TEACHING METHODS</b></p> <p><i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>                                        | <table border="1"> <thead> <tr> <th><b>Activity</b></th><th><b>Semester workload</b></th></tr> </thead> <tbody> <tr> <td>Lectures</td><td>39</td></tr> <tr> <td>Study and analysis of bibliography</td><td>61</td></tr> <tr> <td>Essay writing</td><td>80</td></tr> <tr> <td></td><td></td></tr> <tr> <td>Course total</td><td><b>180</b></td></tr> </tbody> </table> | <b>Activity</b> | <b>Semester workload</b> | Lectures | 39 | Study and analysis of bibliography | 61 | Essay writing | 80 |  |  | Course total | <b>180</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------|----------|----|------------------------------------|----|---------------|----|--|--|--------------|------------|
| <b>Activity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Semester workload</b>                                                                                                                                                                                                                                                                                                                                              |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
| Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 39                                                                                                                                                                                                                                                                                                                                                                    |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
| Study and analysis of bibliography                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 61                                                                                                                                                                                                                                                                                                                                                                    |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
| Essay writing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 80                                                                                                                                                                                                                                                                                                                                                                    |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                       |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
| Course total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>180</b>                                                                                                                                                                                                                                                                                                                                                            |                 |                          |          |    |                                    |    |               |    |  |  |              |            |
| <p><b>STUDENT PERFORMANCE EVALUATION</b></p> <p><i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other. Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p> | <p>The final grade will be determined as follows:</p> <ul style="list-style-type: none"> <li>• Laboratory exercises and short assignments: 30%</li> <li>• Midterm assessment: 20%</li> <li>• Group regional study and presentation: 20%</li> <li>• Final examination: 30%</li> </ul>                                                                                  |                 |                          |          |    |                                    |    |               |    |  |  |              |            |

#### ATTACHED BIBLIOGRAPHY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p><b>Core Textbooks for the Course</b></p> <ul style="list-style-type: none"> <li>• <b>Anagnostou, A.</b> (2024). <i>Classical &amp; Modern Time Series Models [Undergraduate textbook]. Kallipos, Open Academic Editions. DOI: <a href="https://doi.org/10.57713/kallipos-319">10.57713/kallipos-319</a></i></li> <li>• <b>Anagnostou, A.</b> (2024). <i>Classical &amp; Modern Time Series Models – Volume B [Undergraduate textbook]. Kallipos, Open Academic Editions. DOI: <a href="https://doi.org/10.57713/kallipos-1015">10.57713/kallipos-1015</a></i></li> <li>• <b>Dimeleli, Sofia.</b> <i>Modern Methods of Time Series Analysis.</i></li> <li>• <b>Syriopoulos, Kostas.</b> <i>Analysis and Tests of Univariate Financial Time Series.</i></li> </ul> |
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**Indicative bibliography / Ενδεικτική βιβλιογραφία**

- Armstrong, H. & Taylor, J. Regional Economics and Policy.
- Capello, R. Regional Economics.
- McCann, P. Modern Urban and Regional Economics.
- European Commission. Cohesion Reports and Cohesion Policy documents.