COURSE OYTLINE

(1) GENERAL

SCHOOL	ENVIRONMENT, GEOGRAPHY AND APPLIED ECONOMICS
DEPARTMENT	GEOGRAPHY
LEVEL OF COURSE	UNDERGRADUATE

COURSE CODE	ΓΦ0522	**SEMESTER**	7

COURSE TITLE	SPECIAL TOPICS IN SPATIAL AND STATISTICAL ANALYSIS

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures and Laboratory Classes	3	5

COURSE TYPE	Optional
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (in English if required)
COURSE WEBSITE (URL)	https://eclass.hua.gr/courses/GEO342/

(2) LEARNING OUTCOMES

Learning outcomes
In this course, there is an in-depth study of quantitative methods for exploratory and interpretative analysis of geographic data. The main objective of the course is to teach methods of statistical and spatial statistical analysis and their application to phenomena studied by the science of geography, utilizing both free and commercial software. Upon completion of the course, participants will have enriched their theoretical and practical knowledge in the application of statistical methodologies and applied spatial analysis, and will be able to apply appropriate analysis methods using suitable software for the study of geographic phenomena.

General Competences
• Search for, analysis and synthesis of data and information, with the use of the necessary technologies   • Working independently   • Team work   • Technical skills development   • Production of free, creative and inductive thinking.

(3) SYLLABUS

Some of the key topics covered in the course include (indicative list):

- Means comparison

- Analysis of Variance (ANOVA)

- Factor Analysis and Principal Component Analysis

- Logistic Regression

- Exploration of Spatial Patterns

- Spatial autocorrelation

- Geographically Weighted Regression

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	In class lectures, practical training in ICT laboratory.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	ICT use in teaching and laboratory education, internet use and e-class.
TEACHING METHODS	<table><tr><td>*Activity*</td><td>*Semester workload*</td></tr><tr><td>Lectures</td><td>13</td></tr><tr><td>Laboratory practice</td><td>26</td></tr><tr><td>Projects</td><td>48</td></tr><tr><td>Studying</td><td>40</td></tr><tr><td>**Course total**</td><td>**127**</td></tr></table>
STUDENT PERFORMANCE EVALUATION	Evaluation language: Greek Evaluation methods: 1. Project progress – presentation (30%) 2. Project (70%) Evaluation criteria are announced at the start of the semester and they are accessible to students in the e-class of the course.

(5) ATTACHED BIBLIOGRAPHY

- Fotheringham AS., Brunsdon C., Charlton M., 2000. Quantitative geography: Perspectives on spatial data analysis. London: SAGE Publications.

- Fotheringham AS., Brunsdon C., Charlton M., 2002. Geographically Weighted Regression: the analysis of spatially varying relationships. Chichester: John Wiley and Sons.

- Fotheringham A.S., Charlton M.E., Brunsdon, C., 1996. The Geography of Parameter Space: an Investigation into Spatial Non-Stationarity. *International Journal of Geographical Information Systems*, 10, 605-627.

- Rogerson PA., 2010. Statistical Methods for Geography, 3rd ed. London: SAGE Publications.

- Iliopoulou P., 2015. Geographic Analysis [ebook]. Kallipos, Open Academic Editions. (In Greek)

Available Online at: https://repository.kallipos.gr/handle/11419/2059

- Kavroudakis D., 2020. Spatial Analysis. Thessaloniki: Disigma Publications. (In Greek)

- Kalogirou S., 2015. Spatial Analysis [ebook]. Kallipos, Open Academic Editions. (In Greek)

  Available Online at: https://repository.kallipos.gr/handle/11419/5029

- Panagiotakos D., 2024. Applied Biostatistics using IBM SPSS & STATA. Athens: Neon Publications (In Greek)