COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY		
ACADEMIC UNIT	DEPARTMENT OF STATISTICS		
LEVEL OF STUDIES	1st Cycle (UNDERGRADUATE)		
COURSE CODE	**6238**	**SEMESTER**	**8th**
COURSE TITLE	Sports Data Analytics		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
	4	7

COURSE TYPE	Elective - Specialised general knowledge
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	https://www.dept.aueb.gr/en/stat/content/special-topics-statistics-and-probability-stsp-sports-data-analytics-7-ects

(2) LEARNING OUTCOMES

Learning outcomes

Upon successful completion, students will be able to

- demonstrate their ability to apply statistical analytics in sports at an appropriate level and demonstrate their ability to apply knowledge acquired from their major to real world models.
- demonstrate mastery of data analysis and statistical concepts by communicating critically reasoned analysis through written and oral presentations.
- Understand the uncertainty is sports related events
- Apply statistical techniques to the processing and interpretation of data from various sports

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work

- Skills to present results
- Working in an interdisciplinary environment

(3) SYLLABUS

- Review on distributions and GLM
- Type of sports data, data collection and challenges
- Data Visualization of sports data
- Paired comparison models
- Models for football
- Models for basketball
- Models for tennis and other sports
- Performance analysis for various sports. Indices and rationale
- Probabilities and Betting
- Sports Economics
- Other quantitative methods, scheduling
- Applications with real data

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	**YES**
TEACHING METHODS	
STUDENT PERFORMANCE EVALUATION	Evaluation includes written exams and projects.

Activity	*Semester workload*
Lectures	52
Essay writing	40
Project,	28
Study and analysis of bibliography	30
Course total	

(5) ATTACHED BIBLIOGRAPHY

- Albert, J., Bennett, J., & Cochran, J. J. (Eds.). (2005). *Anthology of statistics in sports*. Society for Industrial and Applied Mathematics.
- Zuccolotto, P., & Manisera, M. (2020). *Basketball data science: With applications in R*. CRC Press.
- Dobson, S., Goddard, J. A., & Dobson, S. (2001). *The economics of football* (Vol. 10). Cambridge: Cambridge University Press.