Anthology of Sports

(1) GENERAL

SCHOOL	SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY		
ACADEMIC UNIT	DEPARTMENT OF STATISTICS		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE		**TRIMESTER**	**3 OR 6**
COURSE TITLE	Anthology of Sports		
INDEPENDENT TEACHING ACTIVITIES		**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures		1,5	2,5
Workshops			
Labs			
		15	2,5
COURSE TYPE	Specialization Elective		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	ENGLISH		
COURSE DELIVERY METHOD	Distance		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	https://cloud.aueb.gr/index.php/s/HAgDoQe52eWfTEg		

(2) LEARNING OUTCOMES

Learning outcomes

- Understanding the specific characteristics of data analysis across different sports and the differences in data structure and nature.
- Familiarization with the challenges of collecting, managing, and analyzing sports data in diverse competitive environments.
- Application of data analysis methods in track and field sports, with emphasis on prediction, movement evaluation, and technical performance.
- Understanding analytical approaches in net & wall sports, such as tennis and volleyball.
- Introduction to data analysis techniques in American sports, such as baseball, American football, and hockey.
- Analysis of challenges arising in e-games, due to the large availability of behavioral and strategic player data.
- Comparison of analytical requirements between one-on-one individual sports and team sports.
- Development of skills in applying analytical strategies through case studies using real data from various sports.
- Cultivation of abilities in designing and utilizing data for decision-making in sports.

General Competences

- Analysis and synthesis of data and information, using the necessary data technologies.
- Ability to work in an interdisciplinary environment.
- Adaptation to new situations.

(3) SYLLABUS

This course aims to introduce students to the specific characteristics of data analysis across various sports, as well as to the challenges related to data collection, data issues, and analysis. The course will cover track and field sports (prediction, movement and technique evaluation), net & wall sports (such as tennis and volleyball), and American sports (baseball, American football, and hockey). It will also examine the challenges that arise in e-games, where there is an abundance of available data (ranging from player behavior patterns to strategic choices). Finally, a comparison will be made between one-on-one individual sports and team sports. Case studies using data from different sports will be included.

Through this course, students will gain an understanding of the application of data analysis methods in different sports, as well as the challenges that emerge from this process. This knowledge will equip them with the tools needed to develop and implement analytical strategies in the field of sports.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Distance
METHOD AND FREQUENCY OF COMMUNICATING WITH THE STUDENTS	Remotely via email and through weekly office hours (and whenever necessary) via teleconferencing or in-person office visits.
ENSURING COMMUNICATION AMONG STUDENTS	Teleconference, Chat via eclass and/ or TEAMS, and QA sessions
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	MS Teams, e-class, MS Outlook, R, Python, WayGround or Kahoot educational games and quizzes
REQUIRED EQUIPMENT AND TECHNOLOGY KNOWLEDGE	Camera, mic, PC, MS Office, and TEAMS
COURSE POLICY ON PLAGIARISM AND PLAGIARISM DETECTION TOOLS	Turnitin
COURSE POLICY ON USE OF AI TOOLS	The use of Artificial Intelligence is permitted with explicit reference to the bibliography (2) for the verbal correction of assignments and as long as students have understood the basic principles and methods of the course.
TEACHING METHODS	

Activity	Semester workload
Lectures	15
Assignment writing	20
Lab Exercise	10
Self-Study hours	20
Course total	65

STUDENT PERFORMANCE EVALUATION	Evaluation language is English. Evaluation methods include lab exercises, written assignments, and/or written examinations. Oral examinations of the assignments may be conducted if clarifications are needed or if there are suspicions of plagiarism or unauthorized use of Artificial Intelligence tools. Assessment criteria are provided on the course eClass platform and in the course materials.	

(5) RECOMMENDED BIBLIOGRAPHY

- Albert, J., & Bennett, J. and Cochran, J.J. (2007). Anthology of Statistics in Sports. ASA-SIAM Series on Statistics and Applied Probability. Society for Industrial and Applied Mathematics.
- Albert J., Glickman M.E., Swartz T.B, Koning R.H. (2019). Handbook of Statistical Methods and Analyses in Sports, Handbooks of Modern Statistical Methods, Chapman & Hall/CRC
- Statistics Meets Sports Hardcover – March 1, 2023
- Dominicy Y. and Ley C. (2023). Statistics Meets Sports. Cambridge Scholars Publishing; 1st edition (March 1, 2023)