

Coaching by numbers

(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	Coaching by numbers		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
		1,5	2,5
		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/nwJ9zHLsTFkEMAC		

(2) LEARNING OUTCOMES

Learning outcomes
• Upon successful completion of the course, students will be able to: • Interpret and critically evaluate key performance indicators (KPIs) in individual and team sports. • Analyze data from multiple sources (statistical databases, video footage, tracking systems, wearable devices) and integrate them into coaching decisions. • Apply video analysis techniques to identify tactical, technical, and physical performance patterns. • Design data-informed training interventions aimed at addressing specific weaknesses and enhancing existing strengths. • Translate quantitative findings into actionable insights for coaches, strength & conditioning staff, and athletes. • Assess the suitability of analytical methods depending on the sport and competitive environment. • Combine data-driven evidence with coaching expertise, recognizing the assumptions and limitations of quantitative tools.
General Competences
• Analysis and synthesis of data and information, using the necessary data technologies.

- Working in an interdisciplinary environment.
- Decision-making.
- Adaptation to new situations.

(3) SYLLABUS

In today's data-driven world, sports teams increasingly rely on analytics to gain a competitive edge. While coaches have traditionally depended on experience and intuition, the emergence of sports data analytics has revolutionized the way teams approach game strategies and player development.

Sports data is part of a process of collecting, analyzing, and interpreting information related to athletic performance. Coaches and players use it to gain insights and make evidence-based decisions.

Sports analytics data can be collected from various sources, such as video, wearable devices, tracking systems, and statistical databases. By identifying patterns in player performance, coaches can adjust training programs to address specific weaknesses or enhance existing strengths.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	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.
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(5) RECOMMENDED BIBLIOGRAPHY

• O'Donoghue, P., & Holmes, L. (2014). Data analysis in sport. Routledge. • Passos, P., Araújo, D., & Volossovitch, A. (2016). Performance analysis in team sports. Taylor & Francis.
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