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QUANTSTATS
DATA ANALYSIS IN FOOTBALL COURSE

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What You Will Learn in This Course

This course provides a comprehensive introduction to football data analysis, covering the key concepts, tools, and techniques used in the industry. Participants will explore the history and importance of data in football, learn about different data formats and collection methods, and gain hands-on experience with proprietary and publicly available datasets. The course will also delve deep into advanced metrics, visualization techniques, and Python-based analytics, including heatmaps, passing networks, and event plots. In the final stage, participants will learn how to structure and present data-driven reports using Power BI, transforming complex analytics into clear, impactful insights for teams, coaches, and media professionals.

COURSE SUMMARY

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01.
Introduction to Data Analysis in Football

1. Historical Context
2. Applications of Data in Football
3. Q&A with Bassem Taboubi
the CEO of Quantum Sports Analytics

02.
Football Data Formats

1. Introduction to Football Data Collection
2. Types of Football Data
3. QuantStats Proprietary Data
4. Presentation and Demo of QuantStats Tagging Tool
5. Data Scraping Demo
6. Challenges in Data Collection

03.
Metrics and Visualization Tools for Football Analysis

1. Introduction to Key Metrics
2. Creating Visualizations with Python and mplsoccer
3. Interactive Activity

04.
Tools for Data Transformation and Analysis

1. Purpose of Reporting
2. Design Principles for Reports
3. Creating Team Reports with Power BI
4. Reports for Media and Social Media
5. Hands-On Project

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Course Program

Start Date: 11/05/2025

4 Online Sunday Sessions + 3 Mid-Week Briefings:

- 1st day (**4 hours**) – 11/05/2025
  - Online briefing (**1 hour**) – 14/05/2025

- 2nd day (**4 hours**) – 18/05/2025
  - Online briefing (**2 hours**) – 21/05/2025

- 3rd day (**4 hours**) – 25/05/2025
  - Online briefing (**1 hour**) – 28/05/2025

- 4th day (**4 hours**) – 01/06/2025

Week 1:
Introduction to Data Analysis in Football

This chapter will provide an overview of the history and significance of data analysis in football. It will cover the evolution of data use in the sport, starting from its early adoption to the modern-day applications. The chapter will also highlight the various areas where data analysis is currently applied.

4 hours by our CEO Ben Taboubi & Yassine Gourar

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1. Historical Context:

- Highlight the origins of data analysis in football, including early instances like Charles Reep's work in the 1950s.
- Discuss the evolution of technology in sports, from manual data collection to modern tracking systems.
- Present notable examples like Leicester City's Premier League win in 2016, Brentford FC's data-driven approach, the "Moneyball" strategy in Oakland Athletics baseball, and the data revolution in the NBA.
- Include multimedia elements like videos or articles to illustrate these cases.

2. Applications of Data in Football:

- Tactical analysis: How managers use data to inform strategies.
- Player performance analysis: Evaluating individual contributions.
- Injury prevention: Monitoring player workload and health.
- Recruitment: Data-driven scouting of talent.

3. Q&A with Bassem Taboubi the CEO of Quantum Sports Analytics:

- The CEO of Quantum Sports Analytics will present the company's vision, achievements, and innovative contributions to sports analytics.
- A discussion will follow on career opportunities in sports analysis and the skills required to excel in this industry.

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Week 2:
Football Data Formats

In this chapter, we will explore the different formats of data used in football analysis. You will learn how data is collected from various sources, including match events, player statistics, and tracking data. The chapter will cover structured and unstructured data types, and how they are organized for analysis.

4 hours by Yassine Gourar & Aymen Menjli & Ben Taboubi

1. Introduction to Football Data Collection:

- Outline how data is collected using manual tagging, optical tracking systems, and wearable technology.
- Incorporate a brief video or infographic illustrating a data collection process during a match.

2. Types of Football Data:

- Event Data: Actions like passes, shots, tackles, etc.
- Tracking Data: Positional data of players and the ball.
- Contextual Data: Weather, pitch conditions, and referee decisions.

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3. QuantStats Proprietary Data:

- Provide a comprehensive look at QuantStats' proprietary data, explaining its structure and hierarchy.
- Discuss the main types of events, including shots, passes, crosses, and defensive actions.

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4. Presentation and Demo of QuantStats Tagging Tool:

- Highlight QuantStats' proprietary tagging tool, its features, and real-world applications in event tagging.
- Conduct a live demo showcasing the tool's functionality, including tagging a sample match scenario.

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5. Data Scraping Demo:

- Introduce different sources of free football data, including APIs, websites, and open datasets.
- Demonstrate how to scrape data from these sources using Python libraries like ScraperFC and Selenium.
- Provide practical examples, such as extracting match statistics or player information from a football-related website.

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6. Challenges in Data Collection:

- Discuss obstacles like incomplete data, tracking errors, and the need for data standardization.
- Solutions to these obstacles

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Week 3:
Metrics and Visualization Tools for Football Analysis

This chapter will delve into the key metrics used to analyze football matches. You'll learn how to calculate and interpret important performance indicators like expected goals (xG), possession, and player efficiency metrics. Additionally, we will cover various visualization tools that help communicate these metrics, including radar charts, heatmaps, passing networks, and movement tracking visualizations.

4 hours by Louay Ben Lalahom & Yassine Gourar

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1. Introduction to Key Metrics:

- Define and explain metrics like xG (expected goals), PPDA (passes per defensive action), and possession statistics.
- Discuss their importance and methods of calculation.

2. Creating Visualizations with Python and mplsoccer:

- Provide a step-by-step guide to creating visualizations using the mplsoccer library:
- Heatmaps to display player activity.
- Passing networks to analyze team dynamics.
- Event plots to visualize match actions like shots and tackles.

3. Interactive Activity:

- Supply datasets for participants to create their own visualizations using Python and mplsoccer.

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Week 4:
Tools for Data Transformation and Analysis

The final chapter will focus on applying knowledge from previous chapters to create comprehensive reports for teams, coaches, and media/social media. Participants will learn to design clear, targeted, and visually appealing reports, providing tactical insights for teams and simplified metrics for media. Using Power BI, they will transform data into actionable insights, create dashboards, and design media-friendly visuals like infographics and highlight reels.

4 hours by Louay Ben Lalahom & Yassine Gourar & Sara Bentelli

1. Purpose of Reporting:

- Explain the importance of clear, targeted reports for different audiences:
- Teams and coaches: Tactical insights and performance analysis.
- Media and social media: Engaging visuals and simplified metrics.

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2. Design Principles for Reports:

- Discuss best practices for creating impactful reports:

  - Clarity: Use straightforward language and visuals.
  - Relevance: Tailor content to the audience's needs.
  - Aesthetics: Maintain professional and appealing designs.

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3. Creating Team Reports with Power BI:

- Demonstrate how to use Power BI to:

  ○ Import and transform data.
  ○ Build dashboards showing team performance, player statistics, and tactical metrics.
  ○ Customize visualizations to highlight key insights.

4. Reports for Media and Social Media:

- Showcase examples of media-friendly reports, focusing on storytelling with data.
- Use Canva to design engaging visuals, such as infographics and highlight reels.

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5. Hands-On Project:

- Guide participants in creating their own reports:

  - Choose a target audience (team or media).
  - Select relevant metrics and visualizations.
  - Develop a cohesive and professional report.