Performance Analysis & Data Science

Elective course for students from

- ✓ *Sports Science (i.e. M.Sc. High-Performance Sports)*
- ✓ *Computer Science (i.e. B.Sc. & M.Sc. Data-Science & AI)*

[I30310 Performance Analysis and data-science
Chair for Sports Analytics, Saarland University](#)

Please use the following subject for any email-communication „*Seminar: I30310 Performance Analysis and data-science | [YOUR REQUEST]*" at pascal.bauer@uni-saarland.de

Course Summary—Learning Objectives

- Critically **evaluate physical, technical, and tactical performance** across sports and **understand established key performance indicators** across sports (e.g. Expected Goals, Strokes Gained, etc.)

- Critically **assess methods and metrics for quantifying performance** in sports

- Critically **discuss complex concepts of performance analysis** with practitioners

- **Describe application areas** (e.g., load management, scouting, game analysis) as well as **established professional fields and roles** in high-performance sport (e.g., Head of Performance, Data Scientist, Data Analyst, Video Analyst, Scout, etc.)

- With practical projects, students will learn to *either*

  o **apply standard data-science methods** (e.g., clustering, classification, regression) to sports datasets using **established programming languages (e.g., Python, R),** *or*

  o **conduct structured video analyses** (e.g. opponent analysis or scouting), *or*

  o **create BI-Dashboards or other visualisations** using sports data

Who can and should join the course?

- You love sports and want to **understand the game through data**

- You are curious about **coding**, **video analysis**, or **data visualizations** *(no prior experience required!)*

- You want to understand **state-of-the art performance metrics** from elite sports like *Expected Goals*, *Strokes Gained*, or *Hot-Hand Phenomena*

- You are not scared of applying **math & statistics**

- You enjoy **problem-solving** and learning **new methods and techniques**

Our Teaching Offers
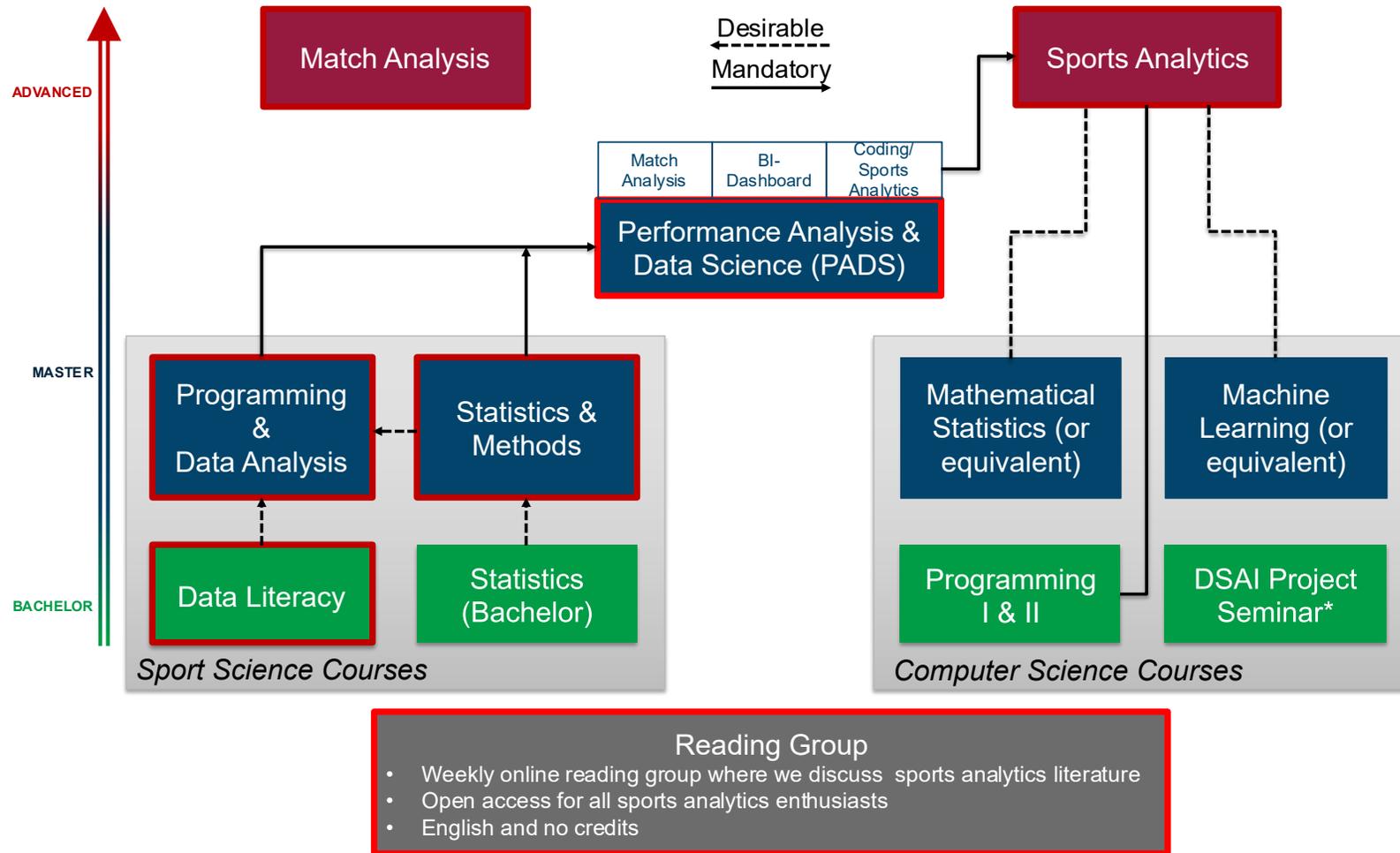
Boxes with a red frame are teached by the chair of sports analytics

*Sports Analytics Task