

# Syllabus — Finance Project — Asset Management

Summer 2026

Prof. Dr. Andre Guettler      Oliver Padmaperuma

## Course information

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<b>Title</b>	Finance Project — Asset Management
<b>Term</b>	Summer 2026
<b>Level</b>	Master
<b>ECTS</b>	6
<b>Instructors</b>	Prof. Dr. Andre Guettler, Oliver Padmaperuma
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<b>Location</b>	Helmholtzstraße 18, room E60, Ulm
<b>Time</b>	Wednesdays 12:15–13:45
<b>Language</b>	English

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## Course objectives

This course teaches students to build an end-to-end empirical asset-management research pipeline in R and to apply it to a non-traditional asset class: prediction markets. Students master the core ML toolbox — linear regression, Ridge, Lasso, Elastic Net, and resampling-based model assessment — then design their own indicator library on the [Polymarket Quant Bench](#) (curated OHLCV bars built on Jon Becker’s [polymarket-data](#) dump), derive trade signals, back-test, and critically reflect on what works.

## Learning outcomes

By the end of this course, students will be able to:

1. Design and execute a full empirical workflow in R: load, clean, model, back-test, report.
2. Apply Ridge, Lasso, and Elastic Net regularisation, and pick hyper-parameters via cross-validation.
3. Engineer technical / statistical / external-data indicators for time-series of prediction-market prices.
4. Implement a simple back-test honestly (including transaction-cost framing) and interpret performance metrics.
5. Communicate empirical findings in writing (R Markdown → PDF) and orally (20-minute presentation).

## Prerequisites

- Comfort with basic statistics and linear regression
- Some prior coding experience (any language) — we ramp up R from scratch in Lecture 2
- A laptop with R, RStudio, and the recommended packages installed before Lecture 2

## Required materials

- **R + RStudio** (free, see <https://posit.co/download/rstudio-desktop>)
- **Reference text:** James, Witten, Hastie, Tibshirani — *An Introduction to Statistical Learning with Applications in R* (free PDF at <https://www.statlearning.com>)
- **Dataset:** [Polymarket Quant Bench](#) on HuggingFace (CC-BY-4.0; built on Jon Becker’s [polymarket-data](#)). Public access — pull with `hf download` ahead of Lecture 5

## Timetable

Adding a new lecture folder under `lectures/` automatically updates this table — no manual edits needed.

## Assessment & grading

Component	Weight
Project (Rmd code + knitr-rendered PDF report)	50%
Final presentation (20-minute group, PDF slides)	50%
<b>Total</b>	<b>100%</b>

**Grading scale:** German scale 1.0 (excellent) – 5.0 (fail). 4.0 is passing.

**Group size:** 3 students. If you don't have a preference, we will allocate you.

## **Policies**

### **Attendance**

Attendance at all five teaching sessions is strongly recommended. Attendance at the final presentations session (1 July 2026) is mandatory for all groups.

### **Late submissions**

The submission deadline (30 June 2026, 18:00) is firm. Late submissions are graded down by one full grade (1.0) per started 24-hour period.

### **Academic integrity**

All work must be the declared group's own. Plagiarism and unauthorised AI use will be referred to the examination office. Citing AI-assisted work where permitted is required. Code submitted with a project must run as-is on the data we provide; we may spot-check by re-running the Rmd.

### **Coding style**

We expect well-commented, self-explanatory, efficient R code: meaningful variable names, no for-loops where vectorised alternatives exist, helper functions for repetitive tasks (each annotated with a one-line comment stating what the function does and returns). The demo code we ship is intentionally basic; copying it without elaboration is not enough.

### **Accommodations**

Students requiring accommodations should contact the instructor in the first week of term.

## Contact

- **Course-content questions:** ask in class (preferred) or email [oliver.padmaperuma@uni-ulm.de](mailto:oliver.padmaperuma@uni-ulm.de), CC [andre.guettler@uni-ulm.de](mailto:andre.guettler@uni-ulm.de).
- **Submissions:** zip-folder named `Asset2026_surname1_surname2_surname3` containing your Rmd, the PDF report, and the PDF slides. Email the same address pattern with the same subject line.
- **Admin / exam-eligibility questions:** [studiensekretariat@uni-ulm.de](mailto:studiensekretariat@uni-ulm.de).
- **Technical (Moodle / IT) questions:** [helpdesk@uni-ulm.de](mailto:helpdesk@uni-ulm.de).
- **Moodle:** all announcements and the dataset link are posted on the course Moodle page.