

Syllabus

AI-Assisted Programming for PhD Researchers

Times, sessions, and topics below follow the official course description. The course runs 1–3 September 2026 at Helmut Schmidt University Hamburg.

Day 1 — Foundations and the Agentic Core Loop

Time	Session	Materials
09:00–10:30	Welcome and From Auto-complete to Agents	Lecture 01
10:30–10:45	<i>Break</i>	
10:45–12:15	Version Control with Git	Lecture 02
12:15–13:15	<i>Lunch</i>	
13:15–14:45	First Steps with an Agent	Lecture 03 , Lab 1
14:45–15:00	<i>Break</i>	
15:00–16:30	Planning with AI	Lecture 04 , Lab 2
16:30–16:45	<i>Break</i>	
16:45–17:00	Day 1 Wrap-Up	

Day 2 — Verification, Safety, and Extension

Time	Session	Materials
09:00–10:30	Verification and Testing with Agents	Lecture 05 , Lab 3
10:30–10:45	<i>Break</i>	
10:45–12:15	Working Safely with AI-Generated Code	Lecture 06 , Lab 4
12:15–13:15	<i>Lunch</i>	
13:15–14:45	Extending the Agent	Lecture 07 , Lab 5
14:45–15:00	<i>Break</i>	
15:00–16:30	Your Research Project	Lecture 08 , Lab Project Overview
16:30–16:45	<i>Break</i>	
16:45–17:00	Day 2 Wrap-Up	

Day 3 — Implementation and Presentation

Time	Session	Materials
09:00–10:30	Project Development I	Capstone
10:30–10:45	<i>Break</i>	
10:45–12:15	Project Development II	Lecture 09 , Capstone
12:15–13:15	<i>Lunch</i>	
13:15–17:00	Final Presentations	Presentations

Evaluation

This is an accredited course. Evaluation is based on the final presentation, which must include:

1. **Project demonstration:** A working demo of the implemented solution.
2. **Process reflection:** How AI tools were used throughout planning and development.
3. **Challenges and limitations:** Difficulties encountered and how they were addressed.
4. **Insights and recommendations:** Practical advice for other PhD students working with AI coding assistants.

Presentations are 10–15 minutes in length, followed by Q&A with me and your peers.

Bibliography