



10 hours course

Sessions:

- 14/01 (10:00 and 14:00)
- 15/01 (10:00)
- 21/01 (14:00)
- 22/01 (10:00)

Department of Mathematics, University of Aveiro

Event integrated with [UNESCO World Logic Day 2026](#)

Programming with proofs

Alexandre Rademaker

Alexandre Rademaker holds a PhD in Computer Science (PUC-Rio, 2010) and has been a professor at the FGV School of Mathematics since 2010, having also worked as a research scientist at IBM Research Brazil from 2012 to 2025. His areas of expertise include formal methods, type theory, functional programming, and computational linguistics. He is part of the open-source CSLib project in Lean 4 as one of its technical leaders, and leads the Derisking InterAgent project at Atlas Computing. Alexandre has more than 100 scientific publications in his fields of research.



Abstract: The course will present the foundations of computer-assisted proofs and program verification, using the Lean 4 proof assistant (<https://lean-lang.org/>), which integrates specification, functional programming, and formal proof in a single environment. The principles of deductive reasoning, type theory, the relationship between mathematical logic and programming, and techniques for generating and constructing proofs will be covered. Through practical activities and exercises, students will learn to formalize theorems, specify properties, and develop correct and verified programs.

Registration and attendance:

To register, please send an email to (madeira@ua.pt and martins@ua.pt). The meeting is registration free.



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