



CS493: Special Topics in Computer Science I: <Algorithmic Foundation of Numerics>

🕒 Class Time

TWTh 12:10 - 13:00

F(July 6,20) 9:00 - 12:00

📍 Location

To be announced

🎓 Credit

1

👤 Instructor

Professor Martin Ziegler ([ziegler\(at\)kaist.ac.kr](mailto:ziegler@kaist.ac.kr))

📖 Required Materials

Course Summary

This course offers a hands-on introduction to the rigorous foundations of computing with continuous data (real numbers, sequences, functions, maximization, differentiation, integration, ODE and PDE solving) and its consequences to reliable programming practice.

1. Limits of Discrete Computability: Halting Problem
2. In/computable Real Numbers and Functions
3. In/Efficient Discrete Computation: Complexity Theory and P/NP
4. Computational Complexity of Real Numbers and Functions
5. Rapid Numerical Prototyping with the iRRAM C++ Library

Course Evaluation

10% attendance

50% homework / programming assignment

40% final exam