Overview Courses[1]
Master Computational Mathematics
Winter Term 2022/23

Module Group: "Algebra, Geometry and Cryptography":

Computer Algebra (Prof. Dr. Kreuzer)

Seminar:

– NOCAS (Prof. Dr. Kreuzer)

– Pure Mathematics (Prof. Dr. Kaiser, Prof. Dr. Außenhofer)

- Topics in Computer Algebra (Dr. Abbott)

Module Group : "Mathematical Logic and Discrete Mathematics":

Algorithmic Graph Theory and Perfect Graphs (Prof. Dr. Rutter)

Komplexitätstheorie (Prof. Dr. Müller)

Parameterized Algorithms (Prof. Dr. Rutter)

Randomised Algorithms (Prof. Dr. Sudholt)

Seminar:

– **Tools and Techniques in TCS** (Prof. Dr. Rutter)
– **Pure Mathematics** (Prof. Dr. Kaiser, Prof. Dr. Außenhofer)

---

[1]No guarentee on completeness and correctness.

Module Group: "Analysis, Numerics and Approximation Theory":

Integral Transformations and Computed Tomography (Prof. Dr. Sauer)

Numerics of Differential Equations (Prof. Dr. Wirth)

Operator Theory (Prof. Dr. Forster-Heinlein)

Seminar:

– **Functional Analysis** (Prof. Dr. Prochno)

Module Group: "Dynamical Systems and Optimization":

Symbolische Dynamik und Kodierung (Prof. Dr. Epperlein)

Optimierung (Prof. Dr. Harks)

Seminar:

– **Dynamical Systems** (Prof. Dr. Wirth)
– **Optimization and Game Theory** (Prof. Dr. Harks)
– **Port-Hamiltonian Systems** (Prof. Dr. Wirth)

Module Group: "Stochastics, Statistics":

Foundations of Statistical Data Science (Prof. Dr. Rudolf)

Stochastic Analysis (Prof. Dr. Müller-Gronbach)

Computational Statistics: Statistical Learning in R (PD Dr. Schnurbus)

Econometric Methods (Prof. Dr. Haupt)

Seminar:

- Monte Carlo Methods and Applications (Prof. Dr. Rudolf)
- Mathematical Data Science (Prof. Dr. Rudolf)
- Selected Chapters from Stochastics (Prof. Dr. Müller-Gronbach)

Modulgruppe: "Data Analysis and Data Management and Programming":

Advanced Topics in Data Science (Prof. Dr. Granitzer)

Introduction to Deep Learning (Prof. Dr. Lemmerich)

Principles of AI Engineering (Prof. Dr. Herbold)

Randomised Algorithms (Prof. Dr. Sudholt)

Scaling Database Systems (Prof. Dr. Scherzinger)

Advanced Data Analytics (Dr. Fritsch)

Data on the Web (Prof. Dr. Scherzinger)

Data Science Lab (Prof. Dr. Granitzer)

Graphen und Netzwerkalgorithmen (Prof. Dr. Rutter)

Modulgruppe: "Applications":

Advanced Topics in Management Science: Planning of Complex Interacting Systems (Prof. Dr. Otto)

Financial Engineering und Strukturierte Finanzierung (Prof. Dr. Entrop)