

Overview Courses¹
Master Computational Mathematics
Summer Term 2024

Module Group: “Algebra, Geometry and Cryptography”:

Cryptography (Prof. Dr. Kreuzer)

Real Algebraic Geometry (Prof. Dr. Kaiser)

Seminar:

- **Logic and Geometry** (Prof. Dr. Kaiser, Prof. Dr. Müller)
- **NOCAS** (Prof. Dr. Kreuzer)

Module Group : “Mathematical Logic and Discrete Mathematics”:

Advanced Model Theory (Prof. Dr. Müller)

Discrete Mathematics (Prof. Dr. Glock)

Efficient Algorithms (Dr. Opris)

Extremal Combinatorics (Dr. Gupta) **Information**

Theory (Prof. Dr. Zumbärgel) **Mathematical Logic**

(Prof. Dr. Kaiser)

Theory of Evolutionary Computation (Dr. Dang)

Seminar:

- **Logic and Geometry** (Prof. Dr. Kaiser, Prof. Dr. Müller)

¹No guarantee on completeness and correctness.

Module Group: “Analysis, Numerics and Approximation Theory”:

Funktionalanalysis (Prof. Dr. Wirth)

Mathematical Foundations of Machine Learning (Prof. Dr. Sauer)

Topologie (Dr. Epperlein)

Seminar:

- **Funktionalanalysis** (Prof. Dr. Prochno)
- **Online/Approximation and Distributed Algorithms** (Prof. Dr. Harks)

Module Group: “Dynamical Systems and Optimization”:

Computational Game Theory (Prof. Dr. Harks)

Online and Approximation Algorithms (Prof. Dr. Harks)

Seminar:

- **Advanced Seminar Dynamical Systems** (Prof. Dr. Wirth)
- **Optimization and Game Theory** (Prof. Dr. Harks)

Module Group: “Stochastics, Statistics”:

Computational Statistics - Regression in R (Dr. Schnurbus)

Computational Statistics - Statistical Learning in R (Dr. Schnurbus)

Markov Chain Monte Carlo (Prof. Dr. Rudolf)

Paneldatenanalyse (Dr. Fritsch)

Stochastische Prozesse auf Graphen und Gruppen (PD Dr. Gilch)

Topics in Applied Econometrics (Prof. Dr. Haupt)

Seminar:

- **Applied Statistics - Regression & Forecasting** (Prof. Dr. Haupt)
- **Monte Carlo Methods and Applications** (Prof. Dr. Rudolf)
- **Selected Chapters from Stochastics** (Prof. Dr. Müller-Gronbach)

Modulgruppe: “Data Analysis and Data Management and Programming”:

Computational Linguistics (Prof. Dr. Hautli-Janisz)

Efficient Algorithms (Dr. Opris)

Functional Programming (Dr. Größlinger)

Machine Learning Lab (Prof. Dr. Granitzer)

Multimedia Databases (Prof. Dr. Kosch)

Practical Parallel Programming (Dr. Größlinger)

Responsible Machine Learning (Prof. Dr. Lemmerich)

Semantic Data Integration (Prof. Dr. Algergawy)

Theory of Evolutionary Computation (Dr. Dang)

Modulgruppe: “Applications”:

Corporate Finance und Kapitalmärkte (Prof. Dr. Entrop)

Marketing Research (Prof. Dr. Totzek)

Quantitative Methoden in Finance (Prof. Dr. Entrop)

Approximate Dynamic Programming (Reinforcement Learning) (Prof. Dr. Otto)