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## Master's Program in Computer Science – Master's Track in Theoretical Computer Science

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Please find further information on how to plan your studies and the least amount of credits per course category in the Study Guide. Each individual study plan needs to be approved by the student's mentor.

### Core Focus Courses

At least two Core Focus Courses must be chosen:

Title	Credits	Semester
Algorithmic Game Theory	7	autumn
Machine Learning	6	autumn
Randomized Algorithms and Probabilistic Methods	7	autumn
Satisfiability of Boolean Formulas - Combinatorics and Algorithms	7	spring
Cryptography	7	spring

### Elective Focus Courses

Title	Credits	Semester
Complexity Theory	6	autumn
Geometry: Combinatorics and Algorithms	6	autumn
Mathematical Optimization	11	autumn
Combinatorial Optimization	6	spring
Cryptographic Protocols	5	spring
Einführung in die Quanteninformatik	3	spring
Geometric Integer Programming	6	spring
Graph Theory	5	spring
Models of Computation	6	spring
Randomized Algorithms and Probabilistic Methods: Advanced Topics	5	spring

### Seminar in Focus

At least one Seminar must be chosen:

Title	Credits	Semester
Geometry: Combinatorics and Algorithms	2	autumn
Seminar in Theoretical Computer Science	2	autumn
Seminar SAT	2	autumn
Research Topics in Cryptography (two-yearly seminar)	2	autumn
Algorithms for Database Systems	2	spring
Quantum Information and Cryptography	2	spring
Seminar Algorithmic Game Theory	2	spring
Seminar on Randomized Algorithms and Probabilistic Methods	2	spring
Seminar in Theoretical Computer Science	2	spring

### Elective Computer Science Courses

Of all Master level courses offered by D-INFK, at least one course must be chosen.

### Inter Focus Courses

At least two of the following three Labs must be chosen:

Title	Credits	Semester
Advanced Systems Lab	6	autumn
Algorithms Lab	6	autumn
Computational Intelligence Lab	6	spring

### Elective Courses

All Master level courses offered by ETH Zurich, EPF Lausanne and the University of Zurich may be chosen. Please see the Study Guide for restrictions on language courses.

### GESS Courses

One course offered by GESS: [www.gess.ethz.ch](http://www.gess.ethz.ch)

### Master's Thesis

The supervisor of your Master's thesis must be a member of your specialization area of D-INFK.

### Mentors

Prof. Angelika Steger  
Prof. Bernd Gärtner  
Prof. Thomas Holenstein  
Prof. Juraj Hromkovic  
Prof. Ueli Maurer  
Prof. Emo Welzl  
Prof. Peter Widmayer