

OVERVIEW OF THE STUDY PROGRAM AND MODULES

STUDY PROGRAM:	M.SC. MATHEMATICS
DEGREE:	Master of Science
STANDARD PERIOD OF STUDY:	4 semesters
ECTS POINTS:	120

Sem.	5 LP	5 LP	5 LP	5 LP	5 LP	5 LP
1	Basic module(s)		Basic module(s)		Elective modules	
2	Advanced module		Advanced module		Elective modules	
3	Spezialization module		Professionalization module(s)		Elective module	Scientific Research and Communication (10-MAT-MM0SRC)
4	Master Thesis					Master Seminar (10-MAT-MM0MS)

CP = credit points

ELECTIVE MODULES:

- Completion of 20-45 CP **BASIC MODULES:**

- 10-MAT-BM101 „Differential Equations and Dynamical Systems“ (5 CP)
- 10-MAT-BM301 „Algebra 2“ (10 CP)
- 10-MAT-BM302 „Functional Analysis 2“ (10 CP)
- 10-MAT-BM304 „Introduction to Graph Theory“ (5 CP)
- 10-MAT-BM305 „Partial Differential Equations 1“ (10 CP)
- 10-MAT-BM308 „Numerical Analysis of Differential Equations“ (10 CP)
- 10-MAT-BM309 „Mathematical Statistics“ (5 CP)
- 10-MAT-MM1GEO „Introduction to Geometry and Topology“ (10 CP)
- 10-MAT-MM1SP „Introduction to Stochastic Processes“ (10 LP)
- 10-MAT-MM1TOP „Introduction to Algebraic and Differential Topology“ (5 CP)
- 10-MAT-MM1MO1 „Introduction to Topics in Pure Mathematics“ (5 CP)
- 10-MAT-MM1MO2 „Introduction to Topics in Applied Mathematics“ (5 CP)

→ Modules that have already been validated for the bachelor's degree are not allowed: only 30 CP can be validated out of the first seven modules.

- Completion of 20-40 CP **ADVANCED MODULES:**

- 10-MAT-MM2ALG „Advanced Topics in Algebra“ (10 CP)
- 10-MAT-MM2CPDE „Advanced Computational Partial Differential Equations“ (10 CP)
- 10-MAT-MM2DS „Advanced Topics in Dynamical Systems“ (10 CP)
- 10-MAT-MM2FA „Advanced Topics in Operator Theory/Functional Analysis“ (10 CP)
- 10-MAT-MM2GEO „Advanced Topics in Geometry and Topology“ (10 CP)
- 10-MAT-MM2PDE „Advanced Partial Differential Equations“ (10 CP)
- 10-MAT-MM2SP „Advanced Stochastic Processes“ (10 CP)

- Completion of 10-30 CP **SPEZIALIZATION MODULES:**
 - 10-MAT-MM3ALG „Selected Topics in Algebra“ (10 CP)
 - 10-MAT-MM3ANA „Selected Topics in Analysis“ (10 CP)
 - 10-MAT-MM3FA „Selected Topics in Operator Theory/ Functional Analysis“ (10 CP)
 - 10-MAT-MM3GANA „Selected Topics in Geometric Analysis“ (10 CP)
 - 10-MAT-MM3GDS „Selected Topics in Geometry and Dynamical Systems“ (10 CP)
 - 10-MAT-MM3MEC „Selected Topics in Mechanics“ (10 CP)
 - 10-MAT-MM3NUM „Selected Topics in Numerical Methods“ (10 CP)
 - 10-MAT-MM3PDE „Selected Topics in Partial Differential Equations“ (10 CP)
 - 10-MAT-MM3PROB „Selected Topics in Probability“ (10 CP)
 - 10-MAT-MM3STAT „Selected Topics in Statistics“ (10 CP)

- Completion of 10-20 CP **PROFESSIONALIZATION MODULES:**
 - 10-MAT-MM4IT „Interdisciplinary Topics in Mathematics“ (10 CP)
 - 10-MAT-MM4KTRA „Knowledge Transfer“ (5 CP)
 - 10-MAT-MM4MPRS „Career Perspectives: IMPRS MiS“ (5 CP)
 - 10-MAT-MM4PRO „Career Perspectives: Professional Internship“ (5 CP)
 - 10-MAT-MM4REG „Research Experience in Groups“ (5 CP)
 - modules from other faculties, according to cooperation agreements

- Completion of max. 25 CP **SUPPLEMENTARY MODULES:**
 - 10-MAT-MM4IT „Interdisciplinary Topics in Mathematics“ (10 CP)
 - 10-MAT-MM4REG „Research Experience in Groups“ (5 CP)
 - 10-MAT-MM5AS „Advanced Seminar“ (5 CP)
 - 10-MAT-MM5AT „Advanced Topics in Mathematics“ (10 CP)
 - 10-MAT-MM5MPI „Research at MPI MiS“ (5 LP)
 - 10-MAT-MM5RP1 „Recent Progress in Pure Mathematics“ (5 CP)
 - 10-MAT-MM5RP2 „Recent Progress in Applied Mathematics“ (5 CP)
 - 10-MAT-MM5RS „Reading Seminar“ (5 CP)

SAMPLE STUDY PLAN

Sem.	5 LP	5 LP	10 LP	10 LP
1	Functional Analysis 2 (10-MAT-BM302)		Advanced Topics in Geometry and Topology (10-MAT-MM2GEO)	Advanced Partial Differential Equations (10-MAT-MM2PDE)
2	Introduction to Graph Theory (10-MAT-BM304)	Introduction to Topics in Applied Mathematics (10-MAT-MM1MO2)	Selected Topics in Geometry and Dynamical Systems (10-MAT-MM3GDS)	Advanced Topics in Dynamical Systems (10-MAT-MM2DS)
3	Scientific Research and Communication (10-MAT-MM0SRC)	Recent Progress in Pure Mathematics (10-MAT-MM5RP1)	Advanced Quantum Mechanics (12-PHY-MWPT1)	Advanced Topics in Algebra (10-MAT-MM2ALG)
4	Master Seminar (10-MAT-MM0MS)	Master Thesis		