

General research-oriented track ("F-Profil") in the Bachelor's programme in mathematics

In the following, C stands for credits. All in all, 180 C over the course of 6 semesters have to be acquired, so about 30 C per semester. In each semester, other modules of the key competencies or the minor subject should be chosen besides the mathematics courses, to reach this number of approx. 30 C.

Mathematics modules in the semesters 1 and 2:

For all three tracks, these modules are obligatory:

- B.Mat.0011: Analysis I (9 C) (*"Differential and Integral Calculus I"*)*
- B.Mat.0021: Analysis II (9 C) (*"Differential and Integral Calculus II"*)
- B.Mat.0012: Analytic Geometry and Linear Algebra I (9 C)
- B.Mat.0022: Analytic Geometry and Linear Algebra II (9 C)

B.Mat.0011 and B.Mat.0012 have to be successfully completed until the end of the fourth semester of study.

Mathematics modules from semester 3:

In the general research-oriented track basic lectures of the four fields of study are obligatory:

- One of these modules:
 - o B.Mat.1100: Analysis auf Mannigfaltigkeiten (9 C)
 - o B.Mat.2110: Funktionalanalysis (9 C)
 - o B.Mat.2120: Funktionentheorie (9 C)
 - o B.Mat.2100: Partielle Differenzialgleichungen (9 C)
- B.Mat.1200: Algebra (9 C)
- B.Mat.1300: Numerischen lineare Algebra (9 C)
- B.Mat.1400: Maß- und Wahrscheinlichkeitstheorie (9 C)

Mathematics modules from semester 4:

- 48 C have to be chosen from advanced mathematical modules.
- Among these, at least a proseminar or seminar has to be chosen.
- Advanced mathematical modules are:
 - B.Mat.1100: Analysis auf Mannigfaltigkeiten (9 C, 6 SWS)
 - B.Mat.2100: Partielle Differenzialgleichungen (9 C, 6 SWS)
 - B.Mat.2110: Funktionalanalysis (9 C, 6 SWS)
 - B.Mat.2120: Funktionentheorie (9 C, 6 SWS)
 - B.Mat.3000: Ausgewählte Themen der reinen Mathematik (6 C, 4 SWS)
 - B.Mat.3210: Proseminar im Schwerpunkt SP 1 "Analysis, Geometrie, Topologie" (3 C, 2 SWS)
 - B.Mat.2200: Moderne Geometrie (9 C, 6 SWS)
 - B.Mat.2210: Zahlen und Zahlentheorie (9 C, 6 SWS)
 - B.Mat.2220: Diskrete Mathematik (9 C, 6 SWS)
 - B.Mat.3000: Ausgewählte Themen der reinen Mathematik (6 C, 4 SWS)
 - B.Mat.0720: Mathematische Anwendersysteme (Grundlagen) (3 C, 2 SWS)
 - B.Mat.0721: Mathematisch orientiertes Programmieren (6 C, 3 SWS)
 - B.Mat.0730: Praktikum Wissenschaftliches Rechnen (9 C, 4 SWS)
 - B.Mat.1310: Methoden zur Numerischen Mathematik (4 C, 2 SWS)
 - B.Mat.2100: Partielle Differenzialgleichungen (9 C, 6 SWS)
 - B.Mat.2300: Numerische Analysis (9 C, 6 SWS)
 - B.Mat.2310: Optimierung (9 C, 6 SWS)
 - B.Mat.3031: Wissenschaftliches Rechnen (6 C, 4 SWS)
 - B.Mat.3230: Proseminar "Numerische und Angewandte Mathematik" (3 C, 2 SWS)
 - B.Mat.0740: Stochastisches Praktikum (9 C, 6 SWS)
 - B.Mat.2410: Stochastik (9 C, 6 SWS)
 - B.Mat.2420: Statistical Data Science (9 C, 6 SWS)
 - B.Mat.3041: Overview on non-life insurance mathematics (3 C, 2 SWS)
 - B.Mat.3042: Overview on life insurance mathematics (3 C, 2 SWS)
 - B.Mat.3043: Non-life insurance mathematics (6 C, 4 SWS)
 - B.Mat.3044: Life insurance mathematics (6 C, 4 SWS)
 - B.Mat.3240: Proseminar "Mathematische Stochastik" (3 C, 2 SWS)
 - o B.Mat.3220: Proseminar im Schwerpunkt SP 2 "Algebra, Geometrie, Zahlentheorie" (3 C, 2 SWS)

Minor subject (30 C): Please observe these hints: www.uni-goettingen.de/en/482917.html

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Key competencies (18 C):

- One programming course is obligatory, one of the following is recommended:
 - B.Inf.1801: Programmierkurs (5 C)
 - B.Mat.0721: Mathematisch orientiertes Programmieren (6 C)
- To fill up to 18 C you can choose between:
 - o key competencies offer of mathematics, see www.uni-goettingen.de/en/485026.html
 - o Cross-faculty key competency modules www.uni-goettingen.de/en/192579.html
 - o The maximum number of credits you are allowed to do from the Cross-faculty key competency modules is 10 credits.

Bachelor's thesis (12 C)