

Only the german version of the module description as part of the study regulations is legally binding.

Module name	Algebra
Module number	INF-25-Ba-Ma3
Responsible lecturer	Prof. Dr. Ulrike Baumann ulrike.baumann@tu-dresden.de
Qualification objectives	Students have knowledge of the abstract theory of elements of algebra. They know the basic concepts from the aforementioned theoretical area and can handle them confidently in terms of the mathematical way of working. In particular, they can formulate and prove the facts mathematically correctly. Students are able to bring the theoretical elements they have worked on into a meaningful context with applied questions, derive and justify applications and solve problems.
Content	Contents of the module are elements of the abstract theory of algebraic structures, in particular important algebraic structure classes such as groups, rings, modules, relational and algebraic structures, and basic concepts such as isomorphisms, automorphisms, homomorphisms and factor structures, computing in polynomial rings over finite fields including applications in computer science, basic principles of numerical data handling using the example of splines and the discrete Fourier transform.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self-study. The language of instruction for the lectures and exercises is German.
Prerequisites for participation	The competences to be acquired in the modules INF-25-Ba-Ma1 Linear Algebra and Analysis and INF-25-Ba-Ma2 Discrete Structures are assumed.
Applicability	The module is a compulsory module in the Diploma degree program in Computer Science. The module is a compulsory module in the Bachelor's degree course in Computer Science. The module creates the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 90 minutes. The examination language is German.
Credit points and grades	6 credit points can be earned through the module. The module grade corresponds to the grade of the examination.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.