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

Module name	**Scientific Visualization**
Module number	INF-25-Ma-FVC-SciVis
Responsible lecturer	Prof. Dr. Stefan Gumhold stefan.gumhold@tu-dresden.de
Qualification objec-Tives	Students know the basics of stereo-based visualization, particle, terrain and volume visualization. They understand how different features are mapped to visual attributes. They know the necessary hardware and the required data structures and algorithms. In particular, you will be familiar with the rendering approaches that enable interactive visualization of large data sets. You will know how hierarchical and batch-based structuring can be implemented.
Content	The module covers the application areas of stereoscopy, particle visualization, terrain and volume visualization. The stereoscopy application area includes perception, display technology and rendering, while the particle visualization application area includes data sets, glyph-based visualization and efficient display algorithms. Further content in the field of terrain visualization includes terrain models, data structures and efficient display algorithms and in the field of volume visualization volume rendering integral, illumination ng models, advanced transfer function design and display algorithms for various volume representations.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self bststudium. The language of instruction for the lectures and exercises is English.
Prerequisites for par-ticipation	In the Diploma degree course in Computer Science, the competencies to be acquired in the modules INF-25-Ma-FVC-FCG Foundations of Computer Graphics, INF-25-Ma-FVC-FDV Foundations of Data Visualization, INF-25-Ba-Prg Programming and RoboLab are required. The Master's degree course in Computer Science requires Bachelor's-level programming skills.
Applicability	The module is a compulsory elective module in the Diplom degree program in Computer Science in the main course in the subject area Visual Computing and Machine Lea rning, which must be selected in accordance with Annex 2 to the examination regulations. In the Master's degree program in Computer Science, the module is a compulsory elective module in the open track in the subject area of Visual Computing and Machine Learning as well as the supplement, which must be selected in accordance with Annex age 2 to the examination regulations. The module can only be chosen once in the Master's degree program in Computer Science. The module cannot be chosen in the Master's degree program in Computer Science if this module or a module with essentially the same content from a degree program with which the admission requirements according to § 3 of the study regulations were fulfilled has already been completed. 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. A bonus achievement for the written examination is the completion of 15 hours of exercises aben. The examination language is English.
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 summer semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.