Module name:	**Mathematics III**
Abbreviation:	MAT3
Study semester:	3rd semester (WS), frequency: once a year
Responsible for module:	Elisabeth Dennert-Möller
Teaching staff:	V. Ahlers, E. Dennert-Möller, R. Klingenberg, F. Sprengel
Language:	German
Place in curriculum:	Bachelor compulsory subject 3rd semester
Teaching methods/SWS:	4 SWS lecture with approx. 80 students 2 SWS exercise with approx. 20 students
Work required:	Lecture = 68 h Exercise = 34 h Own study time = 138 h
Credit points:	8 CP (= 240 h)
Prerequisites acc. to exam regulations:	None
Recommended prerequisites:	None
Learning goals:	Algorithmic and mathematical skills: Getting to know, using, comparing and evaluating numerical methods, selection and use of suitable methods for the approach solution to problems in mathematics and technology, becoming familiar with stochastical methods to describe and analyze data quantities Interpretation and evaluation of the results of numerical and stochastical processes Interdisciplinary skills: Communicative skills (presentation and discussion of suggestions for solution)
Contents:	The basic concepts of numerical processes and their errors are communicated on the basis of selected topics from the fields of linear equation systems, the approximation theory, the quadrature method and numerical treatment of differential equations. The basic principles of statistics focus on - Combinatorics - Principles of the theory of probability - Statistical data analysis - Regression and correlation methods, stochastic processes Corresponding standard software is presented and used for both partial fields of applied mathematics.
Examinations:	Examination (written or oral examination) and experimental work
Media forms:	Lecture: Presentation, board, examples, discussion Exercise: Independent task-solving in groups of 2, assessment of solutions, individual discussion
Literature:	Lecture notes Hübner, G.: Stochastik, Vieweg-Verlag Locher, F.: Numerische Mathematik für Informatiker, Springer-Verlag Schwarz, H.R.: Numerische Mathematik. Teubner Verlag Teschl, G., Teschl, S.: Mathematik für Informatiker, Springer-Verlag Zurmühl, R.: Praktische Mathematik. Springer-Verlag