Module MA-INF 4315	**Probabilistic Graphical Models**				
Workload 270 h	**Credit points** 9 CP	**Duration** 1 semester	**Frequency** every year		
Module coordinator	Jun.-Prof. Dr. Angela Yao				
Lecturer(s)					
Classification	**Programme** M. Sc. Computer Science	**Mode** Optional	**Semester** 1., 2., 3. or 4.		
Technical skills	Students will be introduced to the theory of probabilistic graphical models and study various applications of such models in image processing, computer vision and other topics in AI.				
Soft skills	Productive work in small teams, development and realization of individual approaches and solutions, critical reflection of competing methods, discussion in groups.				
Contents	This course introduces probabilistic graphical models and their use in solving problems in computer vision and machine learning. Graphical models offer a probabilistic framework for modelling and making decisions in complex scenarios with limited and noisy data. We will cover topics such as Markov and Bayesian networks, parameter learning, and inference techniques. The theory will be demonstrated in computer vision applications such as human pose estimation, object tracking, image de-noising and semantic segmentation.				
Prerequisites	**Recommended:** No prior knowledge of statistics is required to follow the course. Exercises will be both theory and programming (Matlab / Python) based.				
Format	**Teaching format**	**Group size**	**h/week**	**Workload[h]**	**CP**
	Lecture	60	4	60 T / 105 S	5.5
	Exercises	30	2	30 T / 75 S	3.5
	T = face-to-face teaching; S = independent study				
Exam achievements	Written exam (graded)				
Study achievements	Successful exercise participation (not graded)				
Forms of media					
Literature					