Georg-August-Universität Göttingen **Module M.WIWI-WIN.0026: Machine Intelligence: Concepts and Applications**	6 C 2 WLH

Learning outcome, core skills: The course would introduce modern machine learning and AI methods with focus on real-world practical applications. The course would also consider the subject of ethical AI and practical implementation of ethical AI principles. The aspects related to privacy, explainability, and transferability of AI based systems will be covered. The participants would be able to understand and apply the state-of-the-art machine learning algorithms on a wide range of problems while addressing legal and ethical requirements.	**Workload:** Attendance time: 28 h Self-study time: 152 h

Course: M.WIWI-WIN.0026.Lec **Machine Intelligence: Concepts and Applications** (Lecture) *Contents*: • Trustworthy AI • Differentially Private Machine Learning • Secure Machine Learning with Fully Homomorphic Encryption • Explainable AI • Federated Learning • Kernel Methods for Machine Learning	2 WLH
Examination: Project (submission of a project report, max. 6 pages per person) M.WIWI-WIN.0026.Mp: Machine Intelligence: Concepts and Applications	6 C

Examination requirements: A demonstration of following capabilities: • problem formulation of a selected practical application of artificial intelligence and machine learning, • analytical/computational solution of the formulated problem, • algorithmic implementation of the solution, • computer simulations.	

Admission requirements: none	**Recommended previous knowledge:** Basics of Matrix Algebra, Basics of Signals & Systems
Language: English	**Person responsible for module:** Prof. Dr. Lutz Maria Kolbe Prof. Dr.-Ing. habil. Mohit Kumar
Course frequency: each summer semester	**Duration:** 1 semester[s]
Number of repeat examinations permitted: twice	**Recommended semester:** 1 - 4
Maximum number of students: 30	