The Hong Kong University of Science and Technology

UG Course Syllabus Template (Simplified version uploading to SENG website)

Principles of Machine Learning

ELEC3350

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Pre-requisites:

(COMP 1021 OR COMP1023) AND (MATH 2111 OR ELEC 2600 OR MATH2121 OR MATH2131)

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Course Description

An introductory course which provides a comprehensive overview of the fundamental concepts and techniques in machine learning, covering supervised learning, unsupervised learning, and reinforcement learning. Students will explore various algorithms and models, such as classification, regression, neural networks, clustering, dimensionality reduction, Markov decision processes, and reinforcement learning. The course emphasizes both theoretical understanding and practical applications, with hands-on programming assignments and a final project. By the end of the course, students will have a solid foundation in machine learning and be equipped with the skills to analyze and solve real-world problems using machine learning techniques.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Attendance	20%
Written Assignment	50%
Final examination	30%

Required Texts and Materials

Goodfellow, Ian, Yoshua Bengio, and Aaron Courville. Deep learning. MIT press, 2016.

Sutton, Richard S., and Andrew G. Barto. Reinforcement learning: An introduction. MIT press, 2018.