



# Introduction to Machine Learning

Prof. Simon S. Woo, Applied Data Science Dept. at SKKU

## SHORT COURSE DESCRIPTION

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Covers fundamental concepts for intelligent systems that autonomously learn to perform a task and improve with experience, including problem formulations (e.g., selecting input features and outputs) and learning frameworks (e.g., supervised vs. unsupervised), standard models, methods, computational tools, algorithms and modern techniques, as well as methodologies to evaluate learning ability and to automatically select optimal models. Applications to areas such as computer vision (e.g., character and digit recognition), natural-language processing (e.g., spam filtering) and robotics (e.g., navigating complex environments) will motivate the coursework and material.

## READING MATERIALS

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Will be provided by the instructor

## COURSE REQUIREMENTS AND GRADING

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Pass/fail grading (grade of 60 or above is Pass)

Attendance: 10% (SKKU regulations require students to attend at least 80% of all classes.)

HWs: 50%

Final Presentation: 40%

## COURSE SCHEDULE

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### – WEEK I –

Mon (27 June) 1. Introduction

Tues (28 June) 2. Overview of Machine Learning

Wed (29 June) 3. Linear Regression (I)

Th (30 June) 4. Linear Regression (II)

### – WEEK II –

Mon (4 July) 5. Logistic (Regression) Classification (I)

Tues (5 July) 6. Logistic (Regression) Classification (II)

Wed (6 July) 7. Softmax Regression

Th (7 July) 8. Support Vector Machine (I)

**– WEEK III –**

Mon (11 July) 9. Support Vector Machine (II)

Tues (12 July) 10. Anomaly Detection (I)

Wed (13 July) 11. Anomaly Detection (II)

Th (14 July) 12. Introduction to Deep Learning (I)

Fri (15 July) 13. Introduction to Deep Learning (II)

**– WEEK IV–**

Mon (18 July) 14. Final Presentation 1

Tues (19 July) 15. Final Presentation 2