



Sungkyunkwan University (SKKU) International Summer Semester (ISS) 2024

## Introduction to Machine Learning

Prof. Simon S. Woo, Applied Data Science Department, Sungkyunkwan University (<http://dash.skku.edu>)

### SHORT COURSE DESCRIPTION

---

This course covers the fundamental concepts of machine learning, including problem formulations (e.g., selecting input features and outputs) and learning frameworks (e.g., supervised vs. unsupervised), as well as regression and classification algorithms. Applications to areas such as computer vision (e.g., character and digit recognition), natural-language processing (e.g., spam filtering) will be introduced.

### READING MATERIALS

---

-Pattern Classification 2nd Edition, Duta et al. (ISBN-10: 0471056693)

<https://www.amazon.com/Pattern-Classification-Pt-1-Richard-Duda/dp/0471056693>

-Instructor's slides

### COURSE REQUIREMENTS AND GRADING

---

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

Attendance: 15% (SKKU regulations require students to attend at least 80% of all classes.)

HW and Quiz: 35%

Midterm Exam: 30%

Final Presentation: 20%

### COURSE SCHEDULE

---

#### – WEEK I –

Monday (1 July) 1. Introduction to Course

Tuesday (2 July) 2. Introduction to Machine Learning

Wednesday (3 July) 3. Overview of Machine Learning

Thursday (4 July) 4. Linear Regression (I)

#### – WEEK II –

Monday (8 July) 5. Linear Regression (II)

Tuesday (9 July) 6. Linear Regression (II)

Wednesday (10 July) 7. Logistic (Regression) Classification (I)

Thursday (11 July) 8. Logistic (Regression) Classification (II)

**– WEEK III –**

Monday (15 July) 9. Softmax Regression/Midterm

Tuesday (16 July) 10. Support Vector Machine (I)

Wednesday (17 July) 11. Support Vector Machine (II)

Thursday (18 July) 12. Introduction to Deep Learning (I)

**– WEEK IV –**

Monday (22 July) 13. Introduction to Deep Learning (I)

Tuesday (23 July) 14. Introduction to Deep Learning (II)

Wednesday (24 July) 15. Final Presentation