

Course Content

Course Title (English)	Mathematical Principles of Machine Learning
Course Title (Chinese)	機器學習中的數學原理
Credit	3
Instructor	Prof. I-Hsiang Wang 王奕翔 教授
Outline	<p>This course aims to introduce some theoretical foundations of machine learning. The course is roughly divided into two parts: (1) the statistical principles and (2) the algorithmic principles. For the former, we will focus on statistical aspects of learning theory, where the main themes are what can be learned and how well a machine can learn from a finite number of training samples. For the latter, we focus on algorithmic aspects of learning theory, where the main theme is how fast a machine can learn with theoretical performance guarantees.</p>
Goal	<ol style="list-style-type: none">1. Introduce main concepts underlying machine learning with mathematical rigor.2. Uncover mathematical principles underlying various machine learning techniques.3. Introduce methods to theoretically analyze learning algorithms.4. Develop theory-oriented thinking which helps understand existing algorithms and create novel ones.
English Teaching	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Teaching Material	<input checked="" type="checkbox"/> English <input type="checkbox"/> Chinese