# COURSE DETAIL

| DEEP REINFORCEMENT LEARNING |
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| **Country**<br>Taiwan |
| **Host Institution**<br>National Taiwan University |
| **Program(s)**<br>National Taiwan University |
| **UCEAP Course Level**<br>Upper Division |
| **UCEAP Subject Area(s)**<br>Computer Science |
| **UCEAP Course Number**<br>132 |
| **UCEAP Course Suffix** |
| **UCEAP Official Title**<br>DEEP REINFORCEMENT LEARNING |
| **UCEAP Transcript Title**<br>DEEP LEARNING |
| **UCEAP Quarter Units**<br>4.50 |
| **UCEAP Semester Units**<br>3.00 |

**Course Description**

This course takes students on a journey through one of artificial intelligence's most dynamic fields. Deep reinforcement learning (DRL) has achieved remarkable breakthroughs, from mastering complex games to controlling robots. The course discovers how artificial intelligence (AI) agents learn to make decisions through interaction, beginning with core concepts in reinforcement learning and deep learning; then it explores how these powerful approaches combine to create sophisticated learning systems.

The course progresses naturally through key topics in decision making with Markov processes, modern deep learning techniques for AI, value-based methods that help agents evaluate their choices, policy optimization approaches for learning effective behaviors, and advanced strategies for stable and efficient learning. The course emphasizes practical understanding through hands-on examples.  By the end of the course, students will understand how to build AI systems that can learn and adapt in complex environments.

**Language(s) of Instruction**
English

**Host Institution Course Number**
CSIE5439

**Host Institution Course Title**
DEEP REINFORCEMENT LEARNING

**Host Institution Campus**

**Host Institution Faculty**
College of Electrical Engineering and Computer Science

**Host Institution Degree**

**Host Institution Department**

Department of Computer Science and Information Engineering

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