



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	電腦對局理論		學年/學期 Academic Year/Semester	112/2	
課程名稱(英文) Course Name in English	Theory of Computer Games				
科目代碼 Course Code	CSIEB0520	系級 Department & Year	學四	開課單位 Course-Offering Department	資訊工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/張紘睿				
先修課程 Prerequisite					
課程描述 Course Description					
In this course, we will teach one of the main branches of artificial intelligence - the theory of computer games. This course will discuss the development of different algorithms in the theory of computer games and how these algorithms can be applied to other domains.					
課程目標 Course Objectives					
本課程為教授人工智慧理論中的其中一個主要分之電腦對局理論，使學生得以理解人工智慧在電腦對局理論中各項演算法的發展歷程，以及這些演算法如何應用或結合到不同的領域中。 In this course, we will teach one of the main branches of artificial intelligence - the theory of computer games. This course will discuss the development of different algorithms in the theory of computer games and how these algorithms can be applied to other domains.					
系專業能力 Basic Learning Outcomes					課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	資訊專業終身學習能力 Ability of lifetime learning in information profession				●
B	實驗驗證資訊科學能力 Ability of validate experimental result validation in information science field				●
C	資訊工具整合運用能力 Ability of integrated applications of information technology				●
D	資訊系統應用設計開發能力 Ability of information application system design and development				○
E	團隊合作溝通協調能力 Ability of teamwork, communication, and coordination				○
F	資通訊科技問題解決能力 Ability of problem solving regarding information and communication technology				○
G	瞭解資訊科技多元影響能力 Ability to understand information technology's multiple influences				
H	肩負資訊人社會責任能力 Ability of bearing the social responsibilities being among information professionals				
圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated					
授課進度表 Teaching Schedule & Content					
週次 Week	內容 Subject/Topics				備註 Remarks
1	Overview of this Course (Syllabus)				
2	Theory of Computer Games: An A. I. Oriented Introduction				

3	Single-Player Games and Basic Algorithm	
4	Single-Player Games and Advanced Algorithm	
5	Introduction to Two-player Game	
6	Introduction to Design Two-player Game Playing Program	
7	Holiday	
8	Alpha-Beta Search Algorithm	
9	期中考試週 Midterm Exam	
10	Scout Search Algorithm	
11	Transposition Table and Other Techniques	
12	Basic Monte-Carlo Search Algorithm	
13	TCGA 2024 @ NDHU	
14	Advance Monte-Carlo Search Algorithm	
15	Opening and Endgame Database	
16	Implementation of Game Playing Program	
17	Final Project Demo	
18	期末考試週 Final Exam Week	

教學策略 Teaching Strategies

- 課堂講授 Lecture
 分組討論 Group Discussion
 參觀實習 Field Trip
 其他 Miscellaneous:

教學創新自評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

- 問題導向學習(PBL)
 團體合作學習(TBL)
 解決導向學習(SBL)
 翻轉教室 Flipped Classroom
 磨課師 Moocs

社會責任(Social Responsibility)

- 在地實踐 Community Practice
 產學合作 Industry-Academia Cooperation

跨域合作(Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching
 跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance									
期中考成績 Midterm Exam	40%	✓							
期末考成績 Final Exam	30%				✓				
作業成績 Homework and/or Assignments	30%		✓						
其他 Miscellaneous (_____)									

評量方式補充說明

Grading & Assessments Supplemental instructions

In this course, we will have one paper-based midterm exam and two to three program homework and one final project.

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

電腦對局導論 Computers and Classical Board Games: An Introduction. 徐讚昇等，台大出版社。

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.

Personal website can be listed here.)

<http://www.elearn.ndhu.edu.tw/moodle/>

其他補充說明 (Supplemental instructions)

The teaching schedule and topics may change due to the real situation.