**Introduction to Artificial Neural Networks**

**Syllabus (課程綱要)**

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Office Hours: By appointment

一、【開課系所】：資訊工程學系(▓學士班□進修學士班□碩士班□碩士在職專班 )

二、【開課年級】：三年級，四年級

三、【修別】：選修

四、【科目名稱】（中文）：類神經網路導論

　　　　　　　（英文）：Introduction to Artificial Neural Networks

五、【先修科目】：無

六、【學分數】： 上學期 3 學分

七、【授課時數】：（正課） 3 小時 （實習）0 小時

八、【教學目標】：

This course is to cover basic neural networks and their applications. The students are to be exposed to a broad range of domain-specific applications study and analysis, and state-of-art research in neural networks and deep learning.

九、【內容綱要】：

1. Introduction: From Brain to Artificial Intelligence.

2. Mathematics Foundation and Thresholding Logic Unit.

3. Perceptron and Least Mean Square Learning Process.

4. Network Paradigms: The Back-propagation Network,

5. Hopfield network

6. Competitive Learning.

7. Kohonen Feature Maps

8. Restrict Columbia Energy

9. Counter-Propagation Network

10. Deep Learning

十、【成績評定原則】：

1. Two programming assignments and demonstration. Counts 50% of course grade

(25% each).

2. One midterm (25% of course grade).

3. One final exam (25% of course grade).

4. Class Attendance: take out 1% per absence

十一、【其他】：

1. Textbook：Handout (http://www.csie.ntpu.edu.tw/~dalton)

2. References:

1. Neural Networks, Simon Haykin, 2nd ed., Prentice-Hall, 1999
2. Neural Networks J. Dayhoff, Academic Press, 1998
3. State-of-the-art references/resources from internet