Subject: **CSS670 (;CSS7507) Information Theory**

Instructor: **Cheng-Ying Yang, Ph.D.**

Meeting hours: Tuesday 10:10-12:00, 16:20-17:10 (;Tuesday 18:25-20:05)

Textbook: 1. Ranjan Bose, ***Information Theory Coding and Cryptography***, Tata McGraw Hill, 2002.

2. **資訊編碼原理與應用**，自製教材，2003

Contents:

1. Overview of Digital Communication System
2. Quantization and Source Coding
3. Markov Processing and Predictive Encoder
4. Entropy and Shannon First theorem
5. Coding and Modulation Trade-off
6. Channel coding – Memoryless coding
7. Channel coding – Convolutional codes

Grading:

Midterm	40%
Final	40%
Participation, Assignment:	20%

Reference:

1. Shu Lin, Daniel J. Costello, Jr., Error Control Coding: Fundamentals and Applications, 2nd ed., Prentice-Hall, 2004.
2. Richard W. Hamming, Coding and Information Theory, Prentice-Hall, 2nd ed., 1986.
3. John G. Proakis, Masoud Salehi, *Contemporary Communication Systems using Matlab*, Books/Cole, 2000.
4. Simon Haykin, *Digital Communications*, Wiley, 1988.
5. Stephen G. Wilson, *Digital Modulation and Coding*, Prentice Hall, 1996.
6. Bernard Sklar, *Digital Communications fundamentals and Applications*, Prentice-Hall, 2001
7. Richard B. Wells, *Applied Coding and Information Theory for Engineers*, Prentice Hall, 1999.
8. Branka Vucetic and Jinhong Yuan, *Turbo Codes Principle and Applications*, Kluwer Academic Publisher, 2000.