

Information Theory

Object: Information theory plays the key role in communication theory and system. It is also fundamental to other fields such as computer science, statistics, or economics. This course will provide key ideas and techniques for information theory.

Year/Semester: 2012/Spring

Time: Mon. 9:10 – 12:00

Place: 1F20, Social Science Building

Instructor: Prof. Peng-Hua Wang

Office: 5F07, Social Science Building

Office Hours: Mon. 13:10 – 14:00, Tue. 13:10 – 14:00,

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Textbook: Thomas M. Cover and Joy A. Thomas, *Elements of Information Theory*, 2nd Edition, John Wiley & sons. Inc., 2006, ISBN: 047 124 1954.

Grading: Homework 40%, midterm 25%, term project 25%(report 10%, presentation in English %15), course attendance 10%.

Lectures:

No.	Date	Topic
1	2012/2/20	Course Preview
2	2/27	<i>No class</i>
3	3/5	Basic definitions and inequalities
4	3/12	AEP
5	3/19	Data compression
6	3/26	Optimal codes
7	4/2	Channel capacity
8	4/9	Channel coding
9	4/16	Differential entropy
10	4/23	<i>Midterm Exam</i>
11	4/30	Bandlimited channel
12	5/7	Rate distortion theory
13	5/14	Rate distortion theory
14	5/21	Information theory and statistics
15	5/28	Information theory and statistics
16	6/4	Information theory and statistics
17	6/11	Term project presentation
18	6/18	Term project presentation