

Information Theory

Instructor :

Po-Ning Chen
Engineering Building 4, Room 831
Phone : 03-573-1670
email: qponing@mail.nctu.edu.tw

Text :

There is no *required* text. A set of copyrighted class notes will be provided in installments. You can obtain the latest version of the lecture notes from

<http://shannon.cm.nctu.edu.tw/it.htm>

The following is a list of *recommended* texts:

1. *A First Course in Information Theory (Information Technology: Transmission, Processing, and Storage)*, Raymond W. Yueng, Plenum Pub Corp., May 2002.
2. *Elements of Information Theory*, Thomas M. Cover and Joy A. Thomas, John Wiley & Sons, Inc., 1991.
3. *Principles and Practices of Information Theory*, Richard E. Blahut, Addison Wesley, 1988.
4. *Information Theory and Reliable Communication*, Robert G. Gallager, 1985.
5. *Mathematical Foundations of Information Theory*, A. I. Khinchin, Dover Publications, Inc., 1957.
6. *Information Theory*, Robert B. Ash, Dover Publications, Inc., 1965.

Grading System :

Your semester grade will be contributed equally by *midterm* (50 points) and *final exams* (50 points).

Since it is an advanced course for which the objective is mainly to provide you with the necessary background on underlying communication theories, your attendance to each lecture is important. I will

bring a sign-in sheet in every lecture, and you shall sign your name on it. Students who fail to show up over three times (i.e., four times, five times, etc) will flunk the course.

Lecture Schedule :

- The first lecture will be given on **February 17**.
- The **midterm**, which covers the entire Volume I of the lecture notes, will be held two weeks after the last slide regarding Volume I of the lecture notes is delivered.
- The last lecture will be given on **May 25**.
- The **final exam** will be held on **June 1, June 8** and **June 15**.
 - On June 1, you will be given challenge problems to solve. Usually, these are problems without standard solutions. Your grade will be dependent on how creative your answers are. Notably, the answers shall be limited within 3 pages, and violation of this page limit shall be justified.

You are required to use **pencils** to answer your questions, and you shall not, in any case, provide any information regarding yourself (so that the graders can identify you simply by reading your answers) in your solutions. You can bring any materials for reference during this 3-hour exam.
 - On June 8, every student will be given copies of answers of all students with the names replaced by “alias numbers”. You shall use red pens to grade all the answering sheets, including yours, within 3 hours. You shall sign on every answering sheet you grade. Necessary comments are suggestive to add in your grades (so that I can evaluate your grading standard).
 - On June 15, some students will be selected to justify their grades orally. For example, “Why giving 90 to this answer but giving 70 to another?” and “Why all your grades are that close to each other? Are they equally good?”
 - Your final grade is the average of all the grades you receive. I will re-adjust it according the way you grade others’ answers.