

1. **Lectures**

Herrin T185, TTh 11-12:15pm, 3 Units

2. **Web Page**

<http://www.stanford.edu/class/ee376b/>

3. **Teaching staff**

- Instructor: Tom Cover
Office: Packard 254
Tel: 723-4505
Email: cover@ee.stanford.edu
Office hours: Wed 2-3 or by appointment

- Administrative Associate: Denise Murphy
Office: Packard 267
Tel: 723-4731
Email: denise@ee.stanford.edu

- TA: Paul Cuff
Office: Packard 251
Tel: 723-4544
Email: pcuff@stanford.edu
Office hours: To be announced.

4. **Textbook**

- “Elements of Information Theory,” 2nd edition, by Cover and Thomas, New York: Wiley, 2006.

- Several texts can serve as auxiliary or reference texts:
 - “Information Theory: 50 Years of Discovery,” edited by Verdu and McLaughlin, IEEE Press, 1999. (Reprint of *IEEE Transactions on Information Theory*, October 1998 Commemorative Issue.)

- “Information Theory and Reliable Communication,” by Gallager, New York: Wiley, 1968.
- “Key Papers in the Development of Information Theory,” edited by Slepian, New York: IEEE Press, 1974.
- “Information Theory,” by Csiszar and Korner, New York: Academic Press, 1981.
- “Claude Elwood Shannon: Collected Papers,” edited by Sloane and Wyner, New York: IEEE Press, 1993.

5. **Course requirements/exams**

- (a) Approximately seven homework assignments.
- (b) Final exam.

6. **Prerequisites**

EE376A or equivalent.

7. **Course description**

Entropy rates of stochastic processes. Differential entropy. Maximum entropy and Burg’s Theorem. Kolmogorov complexity. Information theory and statistics. Gambling and data compression. Stein’s Lemma. AEP. Network information theory. Slepian-Wolf Theorem. Broadcast channel. Multiple access channel. Interference channel. Optimal investment and information theory. Universal portfolios and universal data compression. AEP.