CSC310 Information Theory, Fall 2006 – Info Sheet

September 11, 2006
`www.cs.toronto.edu/∼roweis/csc310/`

- Instructor: Prof. Sam Roweis
  Lectures: Mondays, Wednesdays 10:10-11:00AM, BA 024
  First lecture September 11, last lecture December 1.
  Tutors: Darius Braziunas, Periklis Papakonstantinou
  Tutorials: Fridays 10:10-11:00AM, BA 024
  Office hours: Wednesdays 9-10AM, LP290F
  website: `www.cs.toronto.edu/∼roweis/csc310/`
  email: `csc310@cs.toronto.edu`
  (please do *not* send Roweis or the tutors email about the class directly to their personal accounts)
- Course Email List
  Crucial class information is distributed using an email list (not a newsgroup); therefore **it is very important that you email `csc310@cs.toronto.edu` with your name, student number and UofT email address so we can add you to the class list**.
- Marking Scheme:
  - 2 small assignments worth 8% each
  - 2 larger assignments worth 17% each
  - 1 midterm test and 1 final test worth 25% each
  - NO FINAL EXAM

  Prerequisite: one of CSC148H1/CSC150H1/CSC260H1; one of STA247H1/STA255H1/STA257H1/STA107H1; one of MAT135Y1/MAT137Y1, MAT223H1/MAT240H1; but instructor permission can waive these;
  Load: 26L, 13T
  Auditing policy: permitted with instructor permission
- Course Description:
  The course is an introduction to information theory which is the basis of all modern methods for digital communication and data compression. Measuring information. The source coding theorem. Data compression using ad hoc methods and dictionary-based methods. Probabilistic source models, and their use via Huffman and arithmetic coding. Noisy channels and the channel coding theorem. Error correcting codes, and their decoding by algebraic and probabilistic methods.
- Computing:
  CDF accounts will be created for all students. The assignments will involve implementing some algorithms in any computer programming language of the student's choice, although some code will be provided in either C or Matlab.
- Textbook:
  - *Information Theory, Inference and Learning Algorithms*, David MacKay
  - We will be covering material from Parts I, II, III.
  - The bookstore has a few copies, plus the book is freely available online at `http://www.inference.phy.cam.ac.uk/mackay/itila/book.html`.