6.260 Introduction to Network Coding.

Fall 2011

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Textbook: *Network Coding: An Introduction*, by T. Ho and D. Lun
*Network Coding: Fundamentals and Applications*, Muriel Médard and Alex Sprintson (Eds) (will be available later in the term)
Readings will be posted on the Stellar sclass website

Assignments:

- The homeworks will consist of problem sets, paper reports and a final project
  Hmwk 1: issued Sept. 13, due Sept. 22: PS 1
  Hmwk 2: issued Sept. 13, due Oct. 6: report 1
  Hmwk. 3: issued Sept. 22, due Oct. 6: PS 2
  Hmwk. 4: issued Oct. 6, due Oct. 18: PS 3
  Hmwk. 5: issued Oct. 6, due Oct. 27: report 2
  Hmwk. 6: issued Oct. 18, due Oct. 27: PS 4
  Hmwk. 7: issued Oct. 27, due Nov. 3: report 3
  Hmwk. 8: issued Nov. 3, due Nov. 17: report 4
  Hmwk. 9: issued Sep. 22, due Nov. 17: final project proposal
Hmwk. 10: issued Sep. 22, due last day of classes : final project
Hmwk 11: latexed problem solution

• There will be presentations of the final projects in the last two weeks of class. These will be scheduled.

• Every student will be responsible for Latexing the solutions for one problem . The Latexed version will be due one week after the problem set is returned.

• The readings will be from the textbooks and from papers on the web site. The paper reports will be between two and five pages, 11 point (Latex preferred). Each reading will be marked with a number indicating whether it is a possible choice for a particular Hmwk.

Grading:
The weighting is: problem sets - 15 % ; problem solution - 5 %; paper reports - 30 % each; final project proposal - 10 %; final report presentation - 10 %; final project - 30 %.

Syllabus:
• Lectures 1, 2, 3: Algebraic foundations of network coding.

• Lectures 4, 5, 6: Multicast, random network coding, coding for erasures and generalization of Slepian-Wolf

• Lecture 7, 8: Non-multicast connections

• Lectures 9, 10, 11: Optimization and network coding

• Lectures 12, 13: Feedback and delay

• Lectures 14, 15: Applications of network coding in transport and storage protocols

• Lectures 16, 17: Security in network coding.

• Lecture 18: Analog network coding.
• Lectures 19, 20: New topics in network coding.

• Lectures 21, 22, 23, 24: In-class presentations.

  We may also have a guest lectures and there will be recommended talks.