

Ph.D. course on Network Dynamics
Suggested reading for the first three meetings
(November 3, 9, and 10, 2011)

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For the introductory lecture (3-11-11):

- glance though the first 5 sections of Newman's book [5], or through his survey article on SIAM Review [4] (posted on the course webpage);
- Chapter 1 of Vega-Redondo's book [6]
- Chapters 1-3 of Jackson's book [3]

On the Galton-Watson branching process (9&10-11-11):

- a mathematically rigorous, though quite terse, treatment is in Section 2.1 of [2];
- a more lengthy and perhaps simpler treatment is Chapter 3 of the draft book by R. Van Der Hofstad posted on the course webpage;
- Chapter 2 of M. Draief and L. Massoulié's book [1] (earlier posted on the course webpage);
- The original 1874 paper by Watson and Galton is available at <http://galton.org/essays/1870-1879/galton-1874-jaigi-family-extinction.pdf>

For the Erdős-Rényi phase transition (to be completed next time):

- Chapter 2 of [2];
- Chapter 4 of the draft book by R. Van Der Hofstad posted on the course webpage;

- Chapter 3 of M. Draief and L. Massoulié's book [1] (earlier posted on the course webpage);

Please note that I have bought the books [2], [6] and [3] for the Department's library but they will be on my desk till Tuesday, please stop by;

References

- [1] M. Draief and L. Massoulié, *Epidemics and rumors in complex networks*, Cambridge University Press, 2010.
- [2] R. Durrett, *Random graph dynamics*, Cambridge University Press, 2006.
- [3] M.O. Jackson, *Social and economic networks*, Princeton University Press, Princeton, New Jersey, 2008.
- [4] M. E. J. Newman, *The structure and function of complex networks*, SIAM Review **45** (2003), no. 2, 167–256.
- [5] ———, *Networks: an introduction*, Oxford University Press, 2010.
- [6] F. Vega-Redondo, *Complex social networks*, Cambridge University Press, 2006.