SI508 – Networks: Theory and Application

Every Fall semester
WH 311
Instructor: Lada Adamic, Qiaozhu Mei

School of Information
University of Michigan
Networks are Everywhere
Networks Got Everyone
Networks are Fun!

• Why does it take only 6 hops from me to anyone else in the world?
• Why rich gets richer?
• Why people form communities?
• Why the breaking of some node takes the whole network down?
What’s the Secret behind Networks?

Seven Bridges of Königsberg
Leonhard Euler in 1735

Networks, Crowds, and Markets:
Reasoning About a Highly Connected World
By David Easley and Jon Kleinberg
To be printed in Spring 2010
In this Course

• Network characteristics and metrics
• Network models
• Network applications
  – How does Google rank web pages?
  – How to discover communities?
  – How to make recommendations on Facebook?
  – How to spread/stop rumors?
  – ...
• Handy tools to construct, visualize, and analyze your OWN networks
  – Pajek
  – Guess
SI601 – Data Manipulation
SI618 – Exploratory Data Analysis

Every Winter
WH 311 Tuesdays 5-8pm
Instructor: Qiaozhu Mei, Mick McQuaid, Lada Adamic

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Overload of Data

<table>
<thead>
<tr>
<th>Content Type</th>
<th>Published Content</th>
<th>Professional web content</th>
<th>User generated content</th>
<th>Private text content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount / day</td>
<td>3-4G</td>
<td>~ 2G</td>
<td>8-10G</td>
<td>~ 3T</td>
</tr>
</tbody>
</table>

- Ramakrishnan and Tomkins 2007
How to Get Started in Analyzing Piles of Data
In this Course

• How to retrieve piles of data?
• How to transform the data into the right format?
• What to have better data handling and analysis skills?

• data harvesting, processing, aggregation, and analysis
Upcoming: Data Mining

Expected: Winter 2011
Instructor: Qiaozhu Mei
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