

The Foundations of Network Science

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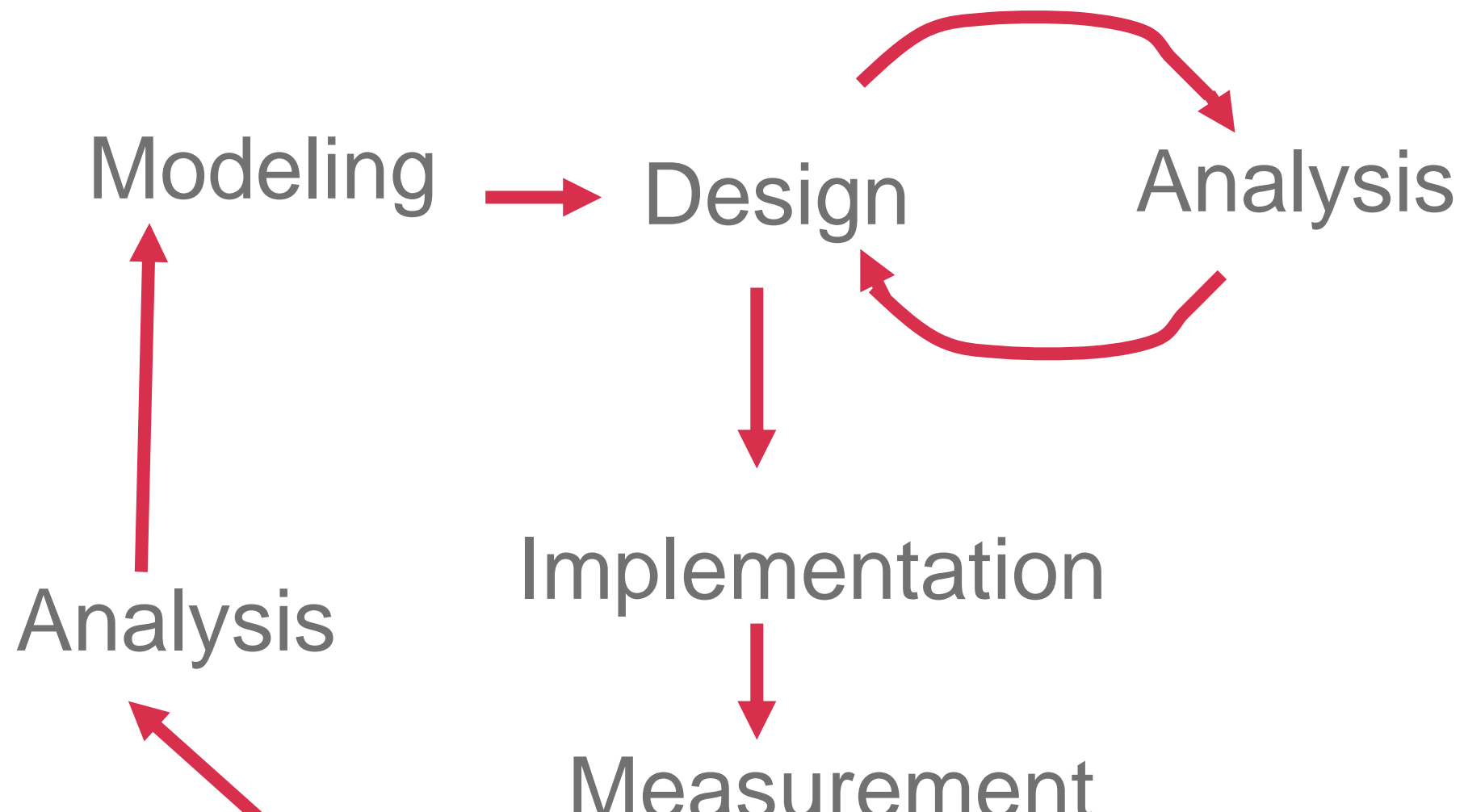
June 30, 2010

Network science?

Principles used in the design and analysis of computer networks

Principles used to study the social and economic impact of the Internet

Network design process



What is needed?

Art of modeling

Systems thinking

Theories

Mathematical foundations

Basic math: algebra, calculus

Mathematical Foundations

Combinatorics

Analysis and design of algorithms

Probability

Statistics

Linear Algebra

Optimization

Signals, Systems, and Transforms

Theories

Economics

Statistical machine learning

Queueing theory

Game theory

Control theory

Information theory

Taught by apprenticeship

- Art of modeling
- Systems thinking

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Draft of six chapters