# CSI 660. Special Topics in Data Mining: Network Mining
Fall 2014

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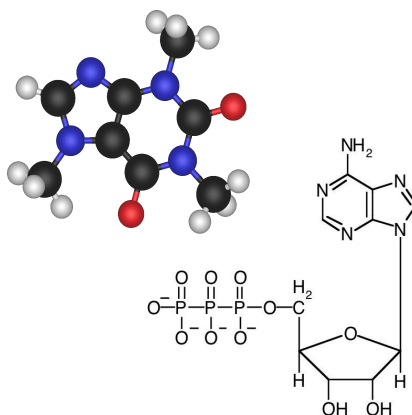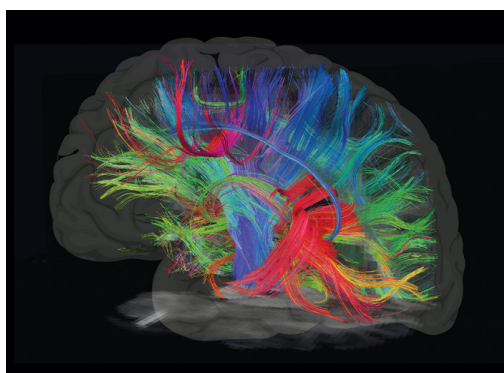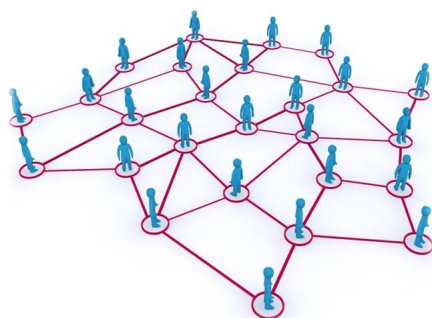
Instructor: Petko Bogdanov
Time and Location: Fridays 2:45pm – 5:35pm, BB 129
Prerequisites: Undergraduate 1) Algorithms and 2) Machine Learning (talk to instructor)
Web Page: http://www.cs.albany.edu/~petko/classes/FALL14.CSI660
Course Description: Networks are omni-present in science, business and everyday life. The Internet, on-line social networks, transportation networks, molecules and interconnected neurons within the brain constitute only a modest set of examples. Affordable sensors, advances in sciences and the boom of the Internet have all enabled the collection of vast amounts of network data whose analysis and understanding hold the promise to answer important questions: *How do we form social connections and communities? How to optimize transportation in the face of globalization? What is the architecture of the brain? Which molecules can be used to treat diseases?*

In order to answer the aforementioned questions, we need scalable and accurate algorithms to mine network data as well as realistic models for network organization and dynamics in order to distill actionable knowledge from the available data. Research in data mining and machine learning as well as models pertaining to the novel discipline of Network Science offer key tools to analyze, model and mine patterns from large networks.

In this class we will study recent research in data mining and network science targeted to understanding big network data. The class will involve reading, student presentations and critical reviews of seminal papers from the field. In addition, all students will complete group research projects related to the topics discussed in class and involving working with real world data.
Grading: review and discussion of papers (20%), presentation (20%), project (60%)