Department of Economics	American University of Central Asia	Spring Semester 2014
ECO 306	Economics and Social Network Analysis	Robert Welch rwelchk17@gmail.com

Course goals

In this course you will study economies as social networks. That is, individual actors obtain information about opportunities as a result of networking with other actors. Actors are nodes in a network and communicate and trade through links to other nodes. The links are dynamic and strategic – actors will analyze benefits and costs of forming new links. This modeling of economic interaction differs from the standard competitive model in which there is a single known market price. An old example comes from labor economics in which job seekers search for jobs using information from friends and acquaintances.

Today, the social network analysis toolkit is a collection of models from graph and game theory, enormous amounts of data made available through social network media, such as Google and Facebook, and computer software programs for simulation and analysis of diffusion within networks. The SNA approach provides new insights as to the formation of institutions, trade patterns, the efficiency of markets, and the persistence of profit from slow diffusion of information.

Pedagogical strategy:

Modern learning theories suggest two strategies which I would like to employ in this course. One is collaborative learning in which solving problems as a group will enable all to learn a little more. A second is taken from online learning, called flip the class. In flip the class the lecture is assigned as a video to be watched at the student's preferred time and the class meeting is open for more discussion and problem solving. I want a more active class with less one way lecturing. However, I have not taped my lectures. Instead, I will assign video lectures that are available at no cost from the internet. All students are expected to have previewed the video lecture and read some of the readings prior to class. I will emphasize key points and may add some material, or my own insight. Problems will be assigned as homework through the e-course system. Some hints may be given before the due date.

Video and reading resources:

[LA-V] Social Network Analysis, LadaAdamic, University of Michigan and Coursera. This is an undergraduate course which gives an overview of a graph theoretic approach and software tools for simulating and analyzing social networks.https://class.coursera.org/sna-002/wiki/syllabus

[MJ-V] Social and Economic Networks, Matthew Jackson, Stanford University andCoursera. This is a graduate level course, a little heavy on mathematics, but has a good collection of applications to economics. https://class.coursera.org/networksonline-002/lecture

The following textbooks are accessible through the library electronic databases, in e-book or pdf formats.

[EK-T] Networks, Crowds and Markets: Reasoning about a highly connected world, David Easley and Jon Kleinberg, Cambridge University Press, 2010, ISBN 978-0-521-19533-1.

[MJ-T] Social and Economic Networks, Matthew O. Jackson, Princeton University Press, 2008, ISBN-13: 978-0-691-13440-6

[AL-T] Linked: The new science of networks, Albert-LasloBarabasi, Perseus Publishing, Cambridge, Massachusetts

Additional material maybe added via the e-course system. Pay attention to any updates to this syllabus, and assignments.

Software: You will be expected to build networks from data and use tools and simulations to discover properties. Software should be available in AUCA computer labs or you may download software from the internet and install on your own computer.

Grading:
Participation in class and forums / project: 20%
Homework and quizzes 20%
1 midterm exam: 30% each
Final: 30%

	Topic	sub-topics	Video lectures and readings
1	Introduction to Social Network Analysis and applications to Economics	Examples of networks and Economic applications, basic definitions	[MJ-v: lect 1] [LA-v: lect 1]
2	SNA software	Practice loading software and discovering properties of example networks	
3	Network models	Connected and giant components, centrality, betweenness	
4	Random networks	Exponential random graphs; community structure	
5	More random networks	Preferential attachment	
6	Mid Term		
7	Contagion; opinion formation, threshold models		
8	Strategic formation	Game theoretic modeling; efficiency and equilibria	
9	Information diffusion on networks	Market efficiency, profiting from market disequilibria	
10	Learning on Networks	Belief convergence	
11	Market failures and network structure		

12	Review; Project Presentations		
13		Final	

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