

		The 3 <sup>rd</sup> International IPSA – HSE Summer School for Methods of Political & Social Research  Course Syllabus
<b>Course title:</b>		Social Network Analysis (SNA)
<b>Instructor:</b>		Sr. Lecturer Ilya Musabirov, Lecturer Viktor Karepin
<b>ECTS / academic hours</b>		2 ECTS / 72 academic hours: 36 contact hours, 36 self – study hours
<b>Brief course description (up to 100 words):</b>		<p>Social Network Analysis is a powerful and widely used methodology in Social Sciences. This approach uses network metaphor for studying structure and features of social, economic or any other kind of relations between actors. With an emergence of massive online data, social network analysis became even more important, being widely applied for Computational Social Science research.</p> <p>The course covers both theoretical and methodological foundations of SNA, and practical part. We will discuss types of research questions one can answer via SNA, examples of research designs from different disciplines, and will get experience of empirical network analysis with R, learning to process network data, different ways to visualize it (including interactive), main SNA metrics and methods (centralities, community detection, density, etc). We will also discuss and practice hypotheses testing on networks and conclude with exploration of more complex statistical models.</p> <p>The course will focus on acquiring conceptual understanding of SNA rather than advanced statistical modelling, and we will widely use visualization and exploratory SNA.</p>
<b>Indicative concepts (up to 10):</b>		network structure, centrality and ranking on networks, communities, visualization of networks
<b>Workshops overview:</b>		Day 1    Brief historical overview and main directions of SNA application will be introduced, as well as common methodology of network data analysis. We will cover basic concepts of SNA, structuring our dialog around graph and network concepts, discuss important cases of SNA from different disciplines and practice graph manipulation with R
		Day 2    We will discuss and practice key SNA concepts such as network centrality, bipartite and ego-networks. We will also cover main theoretical concepts, such as structural holes and structural folds, closure, transitivity, reciprocity. The second part of the day will focus on basics of network analysis in R (igraph). We will work with the classic examples of data from social network research, with focus on visual exploration and interpretation of network metrics. Some visualization techniques will be introduced during the day (ggraph, visNetwork).
		Day 3    We will discuss applications, types of models and research designs of SNA in Political Science. Our lab focus is on network-level characteristics, community detection, density algorithms and network. We will advance our skills of SNA analysis and visualization and talk about getting data in and out of other software (e.g. UCiNET, Gephi, Cytoscape, Pajek, R).
		Day 4    We will discuss network formation mechanisms and some characteristics and approaches related to these mechanisms. We will use agent-based models to illustrate some of the concepts. We also will discuss SNA research designs, and start working on class group projects, recreating and extending existing research.

	Day 5	<p>We will cover advanced SNA approaches, applications and models, discuss combination of SNA with geographical data visualization, semantic networks etc.</p> <p>With the help of experts, participants will finish draft project on network analysis and visualization (data is provided). Finally, students will present the results of the project with interpretation of findings.</p>
<b>Assessment techniques to receive graded certificate:</b>	For getting ECTS and course completion certificate students must participate in a team project and presentation, as well as be active during the in-class discussions	
<b>Essential readings: (Reading list will be supplemented with SNA articles and other relevant sources and distributed during Day 1)</b>	<ul style="list-style-type: none"> <li>- The Oxford handbook of political networks (2017). Oxford University Press.</li> <li>- Robins, Garry. 2015. Doing Social Network Research. 1 edition. Los Angeles: SAGE Publications Ltd.</li> <li>- Borgatti, S. P., Mehra, A., Brass, D. J., &amp; Labianca, G. (2009). Network analysis in the social sciences. <i>science</i>, 323(5916), 892-895.</li> <li>- Scott, J., &amp; Carrington, P. J. (2011). <i>The SAGE handbook of social network analysis</i>. SAGE publications.</li> <li>- Easley, D., &amp; Kleinberg, J. (2010). <i>Networks, crowds, and markets</i> (Vol. 8). Cambridge: Cambridge University Press..</li> </ul>	
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