

TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV

Faculty of Sociology

Department of Methodology and Methods of Sociological Research

"APPROVED"

Deputy Dean

____ «__» _____ 20__

COURSE SYLLABUS

Social Networks Analysis

for students

branch 05 Social and behavioral sciences
specialty 054 Sociology
level master
education program Sociology
type required

Form of training full-time
Year 20__/20__
Semester 3
Number of ECTS credits 4
Language of teaching learning
And evaluation English
Form of final control exam

Course instructor: Yuriy Savelyev

valid for 20__/20__ (_____) «__» 20__

на 20__/20__ . (_____) «__» 20__ .

Kyiv – 2020

developed by:

Savelyev Y., Dr.Sc. in Sociology, Associate Professor of Department of Methodology and Methods of Sociological Research

APPROVED

Head of Department of Methodology and Methods of Sociological Research

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Approved by the Scientific and Methodological Commission of the Faculty of Sociology

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Head of the Scientific and Methodological Commission of the Faculty of Sociology
_____ (_____)

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Course description

The 4 ECTS course "Social network analysis" is designed for full-time training sociology students. The language of instruction is English and the course is scheduled for the third semester of master degree program in sociology.

The course goal – students' comprehension of basic principles and ability to use social network analysis (SNA) to advance their research competencies.

Prerequisites to student's knowledge and skills:

1. *Knowledge of basic methods of data collection and analysis*
2. *Computer intermediate skills*
3. *English level to read professional literature and comprehend lecture materials*

The course summary:

Methods of analysis of social networks are necessary to identify and understand the structural relationships between different actors (individuals, organizations, countries, etc.) in contemporary society. These methods are of particular importance along with development of Internet communications and the global spread of social networks. The course aims to introduce research potential, theoretical and methodological foundations of social network analysis methods and develop basic skills to design and conduct network analysis in practice using programming environments Pajek, Gephi, R or UCINET.

The course learning objectives:

- Knowledge of essential SNA concepts, measures, methods and SNA potential in research of social interactions
- Knowledge and skills to design research of networks and choose appropriate SNA methods
- Basic skills of collecting and processing network data
- Basic skills of analysis of networks in programming environments Pajek, Gephi, R or UCINET

This aims at developing students' competencies:

- Information and communication technology skills (zk12)
- Ability to use of the latest methods of collecting and analyzing sociological information for solving practical problems in different spheres of public life (fk11)
- Ability to substantiate the correctness of the use of latest methods of collecting and analyzing of sociological information (fk 18)
- Ability to use up to date methods of data processing and software to work with data bases (fk19)
- Ability to plan and perform own research, analyze and interpret the obtained results (fk20)

5. Learning outcomes (PH):

Learning outcomes		Forms or methods of teaching	Methods and criteria of evaluation	Proportion of finale grade
Код	Learning outcome			
1.1	Knowledge of essential SNA concepts, measures, methods and SNA potential in research of social interactions	Lecture, practice class, individual work	<i>test with answer options and open answers</i>	20
1.2	Specificity of social network research planning and peculiarities of using network analysis methods	Lecture, practice class, individual work	<i>test with answer options and open answers</i>	10
2.1	Plan, select appropriate data collection and analysis methods, and conduct social network research	Lecture, practice class, individual work	<i>test with answer options and open answers</i>	20
2.2	Perform of network data collection and analysis	Lecture, practice class, individual work	<i>test with answer options and open answers</i>	20
2.3	Perform analysis of networks in programming environments Pajek, Gephi, R or UCINET	Lecture, practice class, individual work	<i>test with answer options and open answers</i>	30

6 Relation of the learning outcomes of the discipline with the program outputs (optional for non-specialty disciplines)

Program outcomes	Learning outcomes				
	1.1	1.2	2.1	2.2	2.3
Apply the latest sociological theories and methods of analysis of social phenomena and processes (prn8)	+	+	+	+	+
Use modern information and communication technologies in professional communication; exchange of information; collecting, analyzing, processing and interpreting data and visually presenting the results of scientific activities (prn11)		+	+	+	+
Use the latest methods of collecting and analyzing sociological information for solving practical problems (prn17)	+	+	+	+	+
Be able to substantiate the choice of methods of qualitative and quantitative data analysis and interpret research results (prn24)	+	+	+		+
Be able to use up to date software products for data analysis and visualization (prn25)				+	+
Know the latest methods of data analysis and interpret the obtained results (prn26)	+	+	+		+

7. Evaluation.

7.1 Evaluation forms:

- Semester evaluation:

1. Practical tasks for topic 1, topic 2, topic 3, PH 1.1, PH 1.2, = 10 points / 6 points
2. KR 1 for topic 1, topic 2, topic 3, PH 1.1, PH 1.2, = 10 points / 6 points
3. Practical tasks for topic 4, topic 5, topic 6, PH 2.1, PH 2.2, PH 2.3 = 10 points / 6 points
4. KR 2 for topic 4, topic 5, topic 6, PH 2.1, PH 2.2, PH 2.3 as an analytical report on social networks research, presentation and network data file, PH 1.1, PH 1.2, PH 2.1, PH 2.2, PH 2.3 = 30 points / 18 points

- **Final evaluation:** Exam PH 1.1, PH 1.2, PH 2.1, PH 2.3 = 40 points (maximum) / 24 points (minimum to pass)

- conditions for admission to the final evaluation:

The student is admitted to the exam if successful completion and personal presentation (not below the threshold level of positive assessment) of practical tasks (topics 1, 2, 3, 4, 5, 6 = 12 points and above), two module tests (KR 1 = 6 points and above), which must be submitted in writing and in electronic form no later than the deadline provided for in the thematic plan, as well as the successful completion of KR 2 = as the research project (18 points and above) by personally submitting the final social research report in writing and in electronic form with mandatory network data file and presentation of the report before the deadline stated in the thematic plan.

The breach of requirements, conditions and deadlines of the tasks, KR 1 and KR 2 submission will induce lower grade or the course failure. Submitted assignments which will have indication of plagiarism or other signs of infringement of academic integrity will receive unsatisfactory grade.

7.2 Organization of the evaluation: (the order of organization of the forms of assessment provided by the work curriculum with the indicative assessment schedule must be specified).

1. Practical tasks for topic 1, topic 2, topic 3, PH 1.1, PH 1.2 shall be performed and submitted in writing and in electronic form during practice classes.
2. KR 1 on topic 1, theme 2, theme 3, PH 1.1, PH 1.2, must be submitted in writing and in electronic form during a practical class - after topic 3
3. Practical tasks for topic 4, topic 5, topic 6, PH 2.1, PH 2.2, PH 2.3 shall be performed and submitted in writing and in electronic form during practice classes.
4. KR 2 for topic 4, topic 5, topic 6, PH 2.1, PH 2.2, PH 2.3 as an analytical report on social networks research and presentation of results, must be submitted during a practice class in writing and in electronic form with the required network data file in a chosen format before the deadline stated in the thematic plan - after topic 6.

The breach of requirements, conditions and deadlines of the tasks, KR 1 and KR 2 submission will induce lower grade or the course failure. Submitted assignments which will have indication of plagiarism or other signs of infringement of academic integrity will receive unsatisfactory grade.

7.3 Grading

Excellent	90-100
Good	75-89
Satisfactory	60-74
Fail	0-59

8. The course structure and thematic plan

№ п/п	Topic	Work hours		
		lectures	practice classes	students' individual work
1. Analysis of networks in research of social processes (SNA)				
1	1. Theoretical concepts and methodological foundations of SNA	4	2	10
2	2. Basic properties and metrics of social networks	4	4	10
3	3. Centrality measures in SNA	2	4	10
4	<i>Control assignment 1 (KR 1)</i>			10
2. SNA application in sociological research: collecting and processing network data				
5	4. Research design, network data collection and processing	4	2	5
6	5. Methods of network analysis	2	4	5
7	6. Analysis of networks in programming environments Pajek, Gephi, R or UCINET	4	4	10
8	<i>Control assignment 2 (KR 2) as an analytical report of network research project, presentation and network data file</i>			20
	Overall	20	20	80

Total 120 hours, including:

Lectures – **20 hours**

Practice classes – **20 hours**

Individual work - **80 hours**

9 Literature:

Main

1. Borgatti S., Everett M., Johnson J. Analyzing Social Networks. London: SAGE, 2018.
2. Luke D. A Users Guide to Network Analysis in R. Springer, 2015.
3. Wasserman S., Faust K. Social Network Analysis. Cambridge: Cambridge University Press, 1994.
4. de Nooy W., Mrvar A., Batagelj V. Exploratory social network analysis with Pajek: Revised and expanded edition for updated software. Cambridge: Cambridge University Press, 2018.
5. Gephi Tutorials: Learn how to use Gephi. URL: <https://gephi.org/users/>

Optional:

1. Barabási A. L. Bursts: the hidden patterns behind everything we do, from your e-mail to bloody crusades. - Penguin, 2010.
2. Granovetter The Strength of Weak Ties. *American journal of sociology*, 1973. Volume 78 Number 6
3. Encyclopedia of social networks / Barnett George A., ed. - Sage Publications, 2011.
4. Knoke D., Yang, S. Social network analysis. London: SAGE, 2019.
5. Models and Methods in Social Network Analysis. Cambridge: Cambridge University Press, 2005.
6. Padgett, J. F., & Ansell, C. K. (1993). Robust Action and the Rise of the Medici, 1400-1434. *American journal of sociology*, 98(6), 1259-1319.

7. Savelyev Y. Social network analysis: Learning package for students in specialty 054 Sociology, master education level. - K.: Taras Shevchenko National University of Kyiv, 2020. – 52 p.
8. Scott J. Social network analysis. 4th edition. London: Sage, 2017.
9. UCINET 6 for Windows USER'S GUIDE. 2002.
10. Горбачик А., Жулькевська О. Мережевий підхід до вивчення структури українського парламенту // Соціологія: теорія, методи, маркетинг. - 2006. - № 3. - с. 161-181.
11. Дукач Ю.О. Структура протестного поля суспільних рухів в Україні.: дис. ... канд. соц. наук. Київський національний ун-т ім. Тараса Шевченка. - К., 2019.
12. Люк Д.А. Анализ сетей (графов) в среде R. Руководство пользователя. М.: ДМК Пресс, 2017.
13. Костюченко Т., Нагорняк К. Структура зв'язків між депутатами Верховної Ради України 6-го та 7-го скликань: порівняння мереж формування політики // Наукові записки НаУКМА. Соціологічні науки. Том 148. - 2013. - С. 38-44.
14. Сальнікова С. Математичне моделювання соціальних мереж. Навч. посібник для студ. спец. «Соціологія». - Луцьк, 2018. - 120 с.
15. Сальнікова С. Онлайн-дослідження соціальної мережі соціологічних журналів України // Соціологія: теорія, методи, маркетинг. - 2018. - № 4. - С. 135-156.
16. Савельєв Ю.Б. Метод мережевого аналізу у дослідженні соціальних спільнот і актуальні проблеми статистичного моделювання // Проблеми розвитку соціологічної теорії: матеріали XVI Міжнар. наук. конф. «Проблеми розвитку соціологічної теорії: Спільноти: суспільна уява і практики конструювання». - К.: Логос, 2019. - С. 206-208.

10. Resources:

1. Gephi <https://gephi.org>
2. Pajek <http://mrvar.fdv.uni-lj.si/pajek>
3. R packages <https://cran.r-project.org>
4. Freeman L. 2004 The development of social network analysis. https://www.researchgate.net/publication/239228599_The_Development_of_Social_Network_Analysis
5. Hanneman R., Riddle M. Introduction to Social Network Methods https://www.researchgate.net/profile/Robert_Hanneman/publication/235737492_Introduction_to_Social_Network_Methods/links/0deec52261e1577e6c000000/Introduction-to-Social-Network-Methods.pdf
6. Lada Adamic 2012 Social Network Analysis, University of Michigan <https://open.umich.edu/find/open-educational-resources/information/si-508-networks-theory-application>
7. Matthew Jackson 2017 Social and Economic Networks: Models and Analysis, Stanford University <https://www.coursera.org/learn/social-economic-networks>
8. VoxUkraine 2018 Property – connecting politicians: a network analysis of Ukrainian top officials' declarations <https://voxukraine.org/longreads/declarations-graph/index-en.html>
9. UCINET free trial version valid for 60 days <http://www.analytictech.com/ucinet/trial.htm>