Національний технічний університет України
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ
імені ІГОРЯ СІКОРСЬКОГО»

ЗБАГАЧУЄМО КОЖНОГО
КАФЕДРА СОЦІОЛОГІЇ

Department of Sociology

Intellectual Systems in the Analysis of Social Processes

Curriculum (Syllabus)

Course details

Level of higher education	*First (bachelor's)*
Field of knowledge	*C - social sciences, journalism, information and international relations*
Specialisation	*C5 Sociology*
Educational programme	*Social Data Analytics*
Status of discipline	*Elective*
Form of study	*Full-time (day)*
Year of study, semester	*1st year, 2nd semester*
Scope of the discipline	*5 ECTS credits/150 hours: lectures – 30 hours, seminars – 30 hours, independent work – 90 hours.*
Semester control/control measures	*Exam, Modular control work*
Class schedule	*https://schedule.kpi.ua/*
Language of instruction	*Ukrainian*
Information about course leader/teachers	*Lecturer and practical training: Doctor of Sociology, Myroslava Pavlivna Kukhta* *miroslavakukhta@gmail.com*
Course location	*https://classroom.google.com/u/0/c/ODE4NjIxMTkzNjg5?hl=ua*

Curriculum

1. Description of the academic discipline, its purpose, subject matter and learning outcomes

The course aims to provide master's students with an understanding of modern intellectual systems used to analyse social processes, as well as to develop skills in working with digital traces, big data and automated social analysis tools. The course combines sociological, information-analytical and critical approaches, providing a deep understanding of how algorithmic systems form, structure and interpret social information.

The course involves analysing the types of social data generated by the digital environment; the mechanisms of digital trace formation; the principles of operation of intelligent platforms that perform automated collection, filtering, personalisation and recommendation of information; as well as critical reflection on algorithmic control, digital inequality and the social effects of automated decisions.

Communication with the lecturer takes place during lectures and practical classes, as well as during consultations, the schedule of which is posted on the website of the Department of Sociology.

The aim of the discipline is to develop students' ability to integrate sociological approaches with intellectual data analysis tools, critically assess the algorithmic impact on social processes, and apply digital data to study the behaviour, communications, and structure of modern society.

In the course of studying the discipline, students also acquire practical skills:

• collect and perform preliminary analysis of digital traces (activity logs, social media data, web analytics) for the study of social processes;
• structure, clean and aggregate digital data arrays for further intelligent analysis;
• formulate analytical queries to data and interpret the results of intelligent systems (recommendation, classification, personalisation systems);
• use basic visualisation and dashboard tools (such as Power BI or similar platforms) to present the results of social data analysis;
• identify and critically evaluate the social effects of algorithmic data processing (personalisation, filter bubbles, targeting, automated decision-making).

2. Prerequisites and post-requisites of the discipline (place in the structural-logical scheme of training under the relevant educational programme)

The discipline is studied after mastering the disciplines of the bachelor's course.

In particular, "General Sociology – 1, 2", "History of Sociology – 1, 2", "Ukraine in the Context of European Historical Development", "General Theory of Development", "Theory and History of Conflict Resolution" as well as other normative and elective disciplines. The discipline is related to such disciplines as "Computer Analysis of Social Information and Data Visualisation", "Analytical Sociology and Social Behaviour: Modern Approaches", "Foresight Methodology in the Analysis and Modelling of Social Processes", "R and Python Programming Languages in Statistical Computing," which create a common theoretical and methodological basis for students to understand the content of the proposed discipline. Studying this discipline will allow students to more effectively master the disciplines of the master's course and prepare more thoroughly for writing and defending their master's thesis. To study the discipline, it is desirable for students to have skills in using a text editor on a computer and working with electronic information databases.

3. Content of the academic discipline

Topic 1. Social data of digital platforms as a new empirical field
Topic 2. Digital traces of users as indicators of behaviour and interactions
Topic 3. Collecting online data in social research without programming
Topic 4. Designing research sets of digital information
Topic 5. Architecture of intelligent platforms in the digital environment
Topic 6. Recommendation models and mechanisms of personalised visibility
Topic 7. Algorithmic profiling and audience segmentation
Topic 8. Identifying behavioural patterns in digital ecosystems
Topic 9. Intelligent analysis of digital texts in public communications
Topic 10. Analytics of online networks and interaction structures
Topic 11. Interactive visual analytics of social data
Topic 12. Automated moderation and algorithmic management of information flows
Topic 13. Explainability of intelligent systems and trust in algorithms
Topic 14. Bias, risks, and ethical challenges of working with digital data
Topic 15. Transformations of social processes in the age of intelligent systems

4. Learning materials and resources

To successfully study the discipline, it is sufficient to work through the educational material presented in lectures and familiarise yourself with the literature.

Main literature

1. Sociology. Fundamentals of general, special and branch theories. Textbook. Approved by the Ministry of Education and Science of Ukraine. Lukashevich M. P., Tulenkov M. V., Yakovenko Yu. I. Publisher: Karavela. 2024. 544 p.
2. Media literacy: a study guide / Edited by Prokopenko O., Bondar Yu. — Authors: Bondar Yu., Gorska K., Dutsyk D., Kravchenko O., Kulakov A., Romanyuk A., Yurkova O. Kyiv: State Scientific Institution "Encyclopedic Publishing House," 2025. 136 p.
3. Kitchin R. The Data Revolution. SAGE Publications, 2021. 296 p.

4. Iliadis A., Russo F. Critical Data Studies. Polity Press, 2022. 224 p.
5. D'Ignazio C., Klein L. Data Feminism. MIT Press, 2020. 328 p.

Supporting

1. Methodology of Mass Media Research: Handbook / edited by K. G. Sirinok-Dolgareva. Zaporizhia: ZNU, 2017. 156 p.
2. Mishchenko M. Public opinion exists, but can it always be identified // Sociology: Theory, Methods, Marketing. 2022. No. 3. P. 149–160.
3. Onyshchenko O. O. Theories of mass consciousness manipulation: "Overton window and spiral of silence" // Current problems of politics. 2022. Issue 70. P. 55-59. URL: http://app.nuoua.od.ua/archive/70_2022/9.pdf
4. van Dijck J., Poell T., de Waal M. The Platform Society: Public Values in a Connective World. Updated edition, Oxford University Press, 2021.
5. Beer D. The Data Gaze: On Power, Surveillance and the Digital. New edition, SAGE, 2021.
6. Floridi L., Cowls J. Introduction to AI Ethics. Springer, 2023.
7. Rieder B., Hofmann J. Computational Power: Platforms, Users and the Ethics of Algorithms. MIT Press, 2023.
8. Cohen J. N. Adapting to AI: How Will Generative AI Affect Work? How Should We Respond? 2024. DOI: https://doi.org/10.31235/osf.io/ejqan.
9. Wilderom R., Price T., Heitland T. AI-Augmented Cultural Sociology: Guidelines for LLM-assisted text analysis and an illustrative example. DOI: https://doi.org/10.31235/osf.io/tx8jn.
10. Kharchenko V. O. Fundamentals of Machine Learning: Textbook. / V. O. Kharchenko. – Sumy: Sumy State University, 2023. – 264 p.
11. Sociological Metatheorising: History and Modernity / Edited by V. Reznik. Kyiv: Institute of Sociology of the National Academy of Sciences of Ukraine, 2019. 506 p.

Educational content

5. Methods of mastering the academic discipline (educational component)

Lectures

Lecture 1.

Topic 1. Social data of digital platforms as a new empirical field

Key questions: The concept of digital social data. Action data, interaction data, content data and metadata. Features of data formation in social networks, marketplaces and streaming content services. The epistemological status of digital data in sociology. The problem of representativeness and the nature of digital sampling.

SRC: Classification of digital data by source and analytical capabilities.

Literature: Sociology, 2024; Kitchin, 2021; Iliadis & Russo, 2022.

Lecture 2.

Topic 2. Digital traces of users as indicators of behaviour and interactions

Key questions: Types of digital traces. Logs, clicks, search queries, browsing history, and interactions on social networks. Behavioural inference: possibilities and limitations of reconstruction. Behavioural markers of social activity.

SRS: Privacy and digital traces: approaches to risk assessment.

Literature: Kitchin, 2021; van Dijck et al., 2021; Beer, 2021.

Lecture 3.

Topic 3. Collecting online data in social research without programming

Key questions: Low-code/no-code tools for data collection: DataMiner, ParseHub, Apify, CrowdTangle, Google Trends. Collecting structured data through platform exports. Working with CSV–JSON without programming. Restricting access to data through platform policies.

SRS: Building a design plan for digital data collection without programming.

Literature: Sociology, 2024; Beer, 2021; van Dijck et al., 2021.

Lecture 4.

Topic 4. Constructing research sets of digital information

Key questions: Normalisation, cleaning, and unification of digital data. Building datasets for analysing behaviour, interactions, and content. Problems of gaps, noise, and merging data from different platforms. Methodological risks of forming digital datasets.

SRS: Forming the structure of a research dataset for a selected social phenomenon.

Literature: Kitchin, 2021; Critical Data Studies, 2022; Data Feminism, 2020.

Lecture 5.

Topic 5. Architecture of intelligent platforms in the digital environment

Key questions: Platforms as infrastructure. Algorithmic pipelines: data collection, indexing, prediction models. Principles of news feed and recommendation formation. Algorithmic content selection and ranking.

SRS: Comparative analysis of the architectures of Facebook, YouTube, TikTok, and Google.

Literature: van Dijck et al., 2021; Beer, 2021; Rieder & Hofmann, 2023.

Lecture 6.

Topic 6. Recommendation models and personalised visibility mechanisms

Key questions: Principles of recommendation systems. Collaborative filtering, content models, hybrid approaches. Algorithmic personalisation and shaping the user's visible space. Social effects of algorithmic recommendations.

SPS: Comparative analysis of YouTube, TikTok, and Spotify recommendation systems based on open data.

Literature: van Dijck et al., 2021; Beer, 2021; Rieder & Hofmann, 2023.

Lecture 7.

Topic 7. Algorithmic profiling and audience segmentation

Key questions: The concept of algorithmic profiling. Interest data, behavioural patterns, demographic characteristics. Mechanisms of audience segmentation in the work of platforms. Social risks: discrimination, unequal access, the "digital categories" effect.

SRS: Algorithmic segments as a new form of social stratification.

Literature: Beer, 2021; Data Feminism, 2020; Rieder & Hofmann, 2023.

Lecture 8.

Topic 8. Identifying behavioural patterns in digital ecosystems

Key questions: Types of behavioural patterns: interaction, navigation, search, engagement. Principles of pattern detection in digital data. User trajectories, microbehaviour, attention cycles. Analytical capabilities of platform metrics.

SPS: Behavioural patterns in your own digital environment (individual project).

Literature: Kitchin, 2021; Iliadis & Russo, 2022; van Dijck et al., 2021.

Lecture 9.

Topic 9. Intelligent analysis of digital texts in public communications

Key questions: Structure of digital texts. Fundamentals of intelligent text analysis: lemmas, tokens, frequency, categorisation. Sociological possibilities of analysing comments, posts, news, reviews. Algorithmic approaches to identifying semantic structures.

SRS: Comparison of the tone of texts on different platforms (Google Reviews, YouTube, X/Twitter).

Literature: Beer, 2021; Data Feminism, 2020; Critical Data Studies, 2022.

Lecture 10.

Topic 10. Analytics of online networks and interaction structures

Key questions: Fundamentals of network analysis for sociologists. Nodes, connections, clusters, weight and direction of interactions. Measuring influence and structural position. Platforms as network topologies. Social processes in graph structures.

SRS: Building a basic interaction network using an open dataset.

Literature: van Dijck et al., 2021; Kitchin, 2021; Beer, 2021.

Lecture 11.

Topic 11. Interactive visual analytics of social data

Key issues: Principles of digital social data visualisation. Interactive panels, dashboards, filters, dynamic indicators. Analytical capabilities of Power BI and similar systems. Epistemological limitations of visualisations in sociological research.

SRS: Building your own interactive dashboard for social data analysis (Power BI or equivalent).

Literature: Sociology, 2024; Kitchin, 2021; Data Feminism, 2020.

Lecture 12.

Topic 12. Automated moderation and algorithmic management of information flows

Key questions: Mechanisms of automated moderation. Content classification, toxicity detection, spam and bot control. The logic of platform rules. Algorithmic management of content visibility and restrictions. Social consequences of automated information control.

SRS: Research case study of content moderation on various platforms (YouTube, TikTok, Facebook).

Literature: van Dijck et al., 2021; Beer, 2021; Rieder & Hofmann, 2023.

Lecture 13.

Topic 13. Explainability of intelligent systems and trust in algorithms

Key questions: The concept of explainability and its role in socio-humanitarian analysis. Transparency, interpretability, and accountability of algorithms. Reasons for distrust of automated decisions. Explainability as a mechanism for the social legitimisation of algorithmic platforms.

SRS: Analysis of examples of algorithm explainability in open platforms (Meta, Google, TikTok).

Literature: Rieder & Hofmann, 2023; Data Feminism, 2020; Critical Data Studies, 2022.

Lecture 14.

Topic 14. Bias, risks, and ethical challenges of working with digital data

Key questions: Types of bias in data and models. Risks of automated decisions: discrimination, false conclusions, social distortions. Ethical principles of working with digital data. Social responsibility of researchers and digital platforms.

SRS: Analytical case study of identifying potential bias in a digital dataset.

Literature: Data Feminism, 2020; Critical Data Studies, 2022; Rieder & Hofmann, 2023.

Lecture 15.

Topic 15. Transformations of social processes in the age of intelligent systems

Key questions: Changes in the nature of social interaction in the context of algorithmic mediation. Platformisation of social institutions. Algorithmic regimes and their impact on politics, economics, culture and everyday life. Social order in the age of digital platforms.

SRS: Algorithmic transformations as a subject of contemporary sociological theory.

Literature: van Dijck et al., 2021; Beer, 2021; Kitchin, 2021.

Seminar (practical) classes

Seminar 1

Topic 1. Social data from digital platforms as a new empirical field

Key questions: The concept of social data from digital platforms and how it differs from traditional sociological data. Types of data generated by users' digital interactions on social networks, services, and online platforms. The problem of accessibility, fragmentation and unevenness of platform data for researchers. Methodological possibilities and limitations of digital platforms as a source of social knowledge.

Assignment: Prepare a description of the social data of one selected platform with classification by type and level of analytics.

Literature: Sociology, 2024; Kitchin, 2021; Iliadis & Russo, 2022.

Seminar 2

Topic 2. Digital traces of users as indicators of behaviour and interactions

Key questions: The nature of digital traces in the digital platform environment and their connection to real user actions. Features of behavioural recording and ways of converting individual interactions into aggregated activity indicators. Factors distorting digital traces, including algorithmic transformations, technical limitations, and social context. Analytical capabilities of digital traces in the study of behavioural patterns, network structures, and communication dynamics.

SRS: Build a correspondence scheme between key types of digital traces and possible sociological variables.

Literature: Kitchin, 2021; Beer, 2021; van Dijck et al., 2021.

Seminar 3

Topic 3. Collecting online data in social research without programming

Key questions: Possibilities for obtaining digital data without programming skills through export services, no-code parsers, official data dashboards, and open information gathering tools. Criteria for assessing the reliability and validity of data obtained from no-code tools. Problems of representativeness, bot activity, and

fragmentation in data obtained by automated means. Approaches to initial verification, cleaning, and structuring of data obtained without programming.

SRS: Prepare a mini-case study on data collection on a specific social topic using one selected no-code tool.

Literature: Sociology, 2024; Beer, 2021; van Dijck et al., 2021.

Seminar 4

Topic 4. Constructing research sets of digital information

Key questions: The logic of constructing a research dataset from digital information and the requirements for its internal structure. Defining the basic elements of digital data, including events, timestamps, interactions, metadata, and network characteristics. Principles of standardisation, normalisation, and unification of data structures for the application of analytical methods. Logical relationships between variables and ways to detect errors, duplicates, or structural gaps in a digital data set.

SRS: Create a draft structure of a research dataset for analysing the dynamics of interactions on the selected platform.

Literature: Kitchin, 2021; Iliadis & Russo, 2022; D'Ignazio & Klein, 2020.

Seminar 5

Topic 5. Architecture of intelligent platforms in the digital environment

Key questions: The structure of intelligent platforms, including mechanisms for collecting, processing, and routing user data. The internal logic of recommendation, ranking and content personalisation systems. Principles of modular construction of algorithmic services and interaction between individual components of intelligent infrastructure. Features of automated decision-making by platforms and factors influencing algorithmic content selection.

SRS: Compare two different approaches to algorithmic content ranking and prepare a short analytical note.

Literature: van Dijck et al., 2021; Beer, 2021; Rieder & Hofmann, 2023.

Seminar 6

Topic 6. Recommendation models and personalised visibility mechanisms

Key questions: The logic behind basic recommendation models and content ranking mechanisms in digital platforms. Types of signals used by personalisation systems and methods for calculating them. The problem of "closed information environments" and the impact of algorithmic visibility on the formation of social perceptions. Methods for evaluating the quality of recommendation systems in the context of social research.

SRS: Prepare an example of an analysis of a personalised feed on any platform, highlighting the types of signals.

Literature: Beer, 2021; van Dijck et al., 2021; Rieder & Hofmann, 2023.

Seminar 7

Topic 7. Algorithmic profiling and audience segmentation

Key questions: The concept of algorithmic profiling and its sociological interpretation. Mechanisms for creating digital portraits of users based on behavioural data. Audience segmentation in advertising and analytical systems of platforms and ways to identify it. Social consequences of autonomous user classification and the impact of profiling on the structure of digital inequalities.

SRS: Analyse the audience segmentation of a selected social platform and outline possible social effects.

Literature: Beer, 2021; D'Ignazio & Klein, 2020; Iliadis & Russo, 2022.

Seminar 8

Topic 8. Identifying behavioural patterns in digital ecosystems

Key questions: The nature of behavioural patterns formed as a result of repeated user interactions. Principles of describing and classifying behavioural patterns in large data sets. The relationship between the structural characteristics of a platform and the emergence of typical behaviour patterns. Limitations of interpreting behavioural patterns in sociological research.

SRS: Prepare an example of one behavioural pattern from any digital platform and explain its social significance.

Literature: Kitchin, 2021; Beer, 2021; van Dijck et al., 2021.

Seminar 9

Topic 9. Intelligent analysis of digital texts in public communications

Key questions: Principles of automated analysis of digital texts in social networks, media, and forums. Features of working with semantic units, tone, thematic structures, and language markers. Sources of errors in text data and challenges in interpreting analysis results. Possibilities for sociological interpretation of text patterns in identifying moods, perceptions and changes in public topics.

SRS: Prepare an analysis of a short array of texts on any topic with a description of the main categories.

Literature: D'Ignazio & Klein, 2020; Iliadis & Russo, 2022; Beer, 2021.

Seminar 10

Topic 10. Online network analytics and interaction structures

Key questions: Fundamentals of structural analysis of online networks as a tool for studying digital interactions. The significance of nodes, links, density, centrality, and other characteristics for sociological conclusions. Differences between formal networks and behavioural networks formed on the basis of user activity. Difficulties in reconstructing network structures in real digital ecosystems and possible distortions.

SRS: Construct a diagram of conditional interactions between users in a selected topic and identify its key structural elements.

Literature: van Dijck et al., 2021; Kitchin, 2021; Beer, 2021.

Seminar 11

Topic 11. Interactive visual analytics of social data

Key questions: Principles of building interactive visualisations of social data in Power BI and similar tools. The role of graphical models in identifying hidden patterns of digital behaviour. Comparison of static and interactive formats for presenting the results of sociological analysis. Limitations of visual analytics and typical interpretation errors related to data scaling and aggregation.

Assignment: Prepare one interactive or semi-interactive visualisation of social data and describe its analytical value.

Literature: Kitchin, 2021; D'Ignazio & Klein, 2020; Beer, 2021.

Seminar 12

Topic 12. Automated moderation and algorithmic management of information flows

Key questions: Mechanisms for automated detection of violations in digital communications and their social role. Algorithmic moderation systems as an element of platform management and digital order formation. Problems of false positives, opacity, and selectivity in the work of moderation systems. Social consequences of automated decisions for user groups and public discussions.

SRS: Analyse one real case of algorithmic moderation and indicate the potential social consequences.

Literature: Rieder & Hofmann, 2023; van Dijck et al., 2021; Beer, 2021.

Seminar 13

Topic 13. Explainability of intelligent systems and trust in algorithms

Key questions: The concept of explainability of artificial intelligence in the context of social research and public interaction. Factors shaping user trust in algorithmic systems based on experience, interface, and context. Types of explanatory models and their ability to reduce information asymmetry between the platform and the user. Problems of misconceptions about how algorithms work and the social effects of misinterpreting transparency.

SRS: Prepare an example of an explanation of an algorithmic decision in a form accessible to a hypothetical user.

Literature: Floridi & Cowls, 2023; Rieder & Hofmann, 2023; Iliadis & Russo, 2022.

Seminar 14

Topic 14. Bias, risks, and ethical challenges of working with digital data. Transformations of social processes in the age of intelligent systems

Key questions: Sources of algorithmic bias and mechanisms for its reproduction in digital environments. Social groups that are most vulnerable to the discriminatory effects of automated systems. Ethical dilemmas related to the collection, storage and reuse of user data. The issue of the responsibility of platforms and researchers in ensuring the safe and fair analysis of digital data. Changes in the structure of social interaction and communication practices under the influence of algorithmic systems. The formation of new models of collective behaviour and coordination in digital environments. The role of platforms in reconfiguring the boundaries between private and public life. The impact of intelligent systems on political, cultural and economic processes.

SRS: Prepare a mini-case study on the ethical dilemma associated with the use of digital traces in research. Prepare a short analytical note on one transformation of social behaviour associated with intelligent systems.

Literature: D'Ignazio & Klein, 2020; Floridi & Cowls, 2023; Iliadis & Russo, 2022.

Seminar 15

Modular control work

6. Independent work

Independent work includes:
preparation for classroom sessions – 56 hours;
preparation for the Modular control work – 4 hours;
preparation for the exam – 30 hours.
Total – 90 hours.

Policy and control

7. Policy of the academic discipline (educational component)

While studying the material of the academic discipline "Sociology of Public Opinion and Mass Media", students complete assignments for seminars, write a modular control work and take an oral exam (appendixes to the syllabus). These types of work help students consolidate and deepen their theoretical knowledge of specific topics in the module, develop skills for independent work with primary sources, and contribute to the formation of theoretical sociological thinking and imagination.

Attendance and completion of assignments

It will be difficult for students to properly prepare for practical classes and exams if they miss lectures. For students who wish to demonstrate excellent learning outcomes, active participation in lectures is essential. However, it is not necessary to make up for missed lectures.

Active participation in practical classes is mandatory. The student's rating will largely be based on the results of their work in practical (seminar) classes. Each missed practical class (regardless of the reason for the absence) lowers the student's final rating in the discipline.

Students who have missed practical classes can prevent their final rating from being lowered by studying the relevant topics in a timely manner (during the semester) and completing the assignments for the missed classes. There is no need to wait until the exam session to communicate with the teacher. This should be done as soon as the student is ready to demonstrate their knowledge and skills on the missed topics.

The topics and assignments for practical classes are provided in the syllabus, available from the student's personal account in the Moodle or Campus system.

During lectures and practical classes, the use of laptops, smartphones, and written notes is permitted, but only for purposes related to the topic of the class and the corresponding thematic task. It is not advisable to answer the teacher's questions by reading from the screen of a smartphone, laptop, textbook or notes. This does not reflect well on the student's level of preparation. Students' answers may be based on the materials at hand, but should not be read from the text.

Forms of work

Lectures and seminars are conducted in accordance with the requirements of regulatory and methodological documents and the student assessment rating system. Lectures use computer presentations highlighting the main points of the topics, taking into account the subject matter of the classes: from textbooks, teaching aids and dictionaries on sociology.

During seminars, students discuss primary source texts and professional commentary on their content. Seminars provide an opportunity to assess, on the one hand, the level of preparation for them (presentations, participation in discussions, expressing one's own opinion) and, on the other hand, to master the tasks of modular control. The results of the student's work are assessed by the teacher according to the current grading system and indicate the effectiveness of the student's work control. The criteria for assessing the performance of seminar tasks are: logical sequence of answers; completeness of each question; analytical reasoning in the answer; references to sources; validity of personal conclusions.

Procedure for appealing the results of assessment measures

Students have the opportunity to raise any issue related to the assessment procedure and expect it to be considered in accordance with pre-defined procedures. To appeal against an assessment, a student must submit a statement indicating the reason for the appeal and providing evidence of the teacher's bias. The teacher must discuss this application with the student in person during a consultation. If there is no agreement on the result of the assessment, a commission of teachers from the department is formed to evaluate the assessment procedure and the student's claims. The commission may decide to repeat the assessment or reject the application. The commission's decision is final and cannot be appealed.

University policy

Academic integrity

The policy and principles of academic integrity are defined in Section 3 of the Code of Honour of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". For more information, please visit: https://kpi.ua/code. (other necessary information regarding academic integrity).

Standards of ethical conduct

The standards of ethical conduct for students and employees are defined in Section 2 of the Code of Honour of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". For more information, please visit: https://kpi.ua/code.

Artificial intelligence policy

The policy on the use of artificial intelligence and its principles are regulated by the order "Policy on the use of artificial intelligence for academic activities at Igor Sikorsky Kyiv Polytechnic Institute". For more details, see: https://osvita.kpi.ua/node/1225.

8. Types of control and rating system for assessing learning outcomes (RSO)

Assessment and control measures

A student's rating consists of points they receive for:

1) Work in seminars
2) Modular control work
3) Exam

Calculation of weighted points

The RSO for an academic discipline consists of the sum of the student's points for all completed control measures during the semester.

1. Answers in seminars.

Weighting score – 3 points for answering most questions. The maximum number of points for all practical classes is equal to r_{sem} =3 points*14 =42 points.

"Excellent" 3 points – the student receives when answering most of the questions in the seminar. An answer is considered complete if the student demonstrates a deep knowledge of the material, presents it logically and consistently, gives reasoned conclusions, freely uses specific data, provides mostly complete and reasoned answers, expresses their own position on controversial issues, and demonstrates signs of theoretical thinking and sociological imagination.

"Good" 2 points – the student participates in the discussion of individual issues of the seminar plan, demonstrates a good level of knowledge of the material.

"Satisfactory" 1 point – the student participates in the discussion of one issue on the seminar plan or demonstrates rather superficial knowledge, does not express their own position on the issues under discussion.

2. Modular control work. Weighted score – 8 points.

The MCW involves writing an essay on one of the topics listed in Appendix 1.

The essay is assessed according to the following criteria:

"excellent" – 8 points – the student formulates accurate definitions, provides theoretically sound arguments on the topic of the essay, and demonstrates their own reasoned position;

"good" – 5-7 points – the essence of the topic is reflected, but there are inaccuracies in the answer;

"satisfactory" – 3-4 points – incomplete answer, significant errors present;

"unsatisfactory" – 2 points – incorrect answer.

3. Exam – 50 points.

The exam consists of oral or written answers to 3 questions, the list of which is given in Appendix 2. The interview lasts from 3 to 5 minutes. The lecturer may ask any questions from the list if the final score and assessment cause discussion with the student.

Assessment criteria.

40-50 points – the student answers almost all questions on the test, demonstrates a deep knowledge of the material, presents it logically and consistently, gives reasoned conclusions, freely operates with specific data, expresses their own position on controversial issues, demonstrates signs of theoretical thinking and sociological imagination.

30-39 points – the student answers most of the exam questions, demonstrates a good level of knowledge of the material.

20-29 points – the student answers about half of the exam questions, demonstrates rather superficial knowledge.

0-19 points – the student answers only some of the exam questions, does not have their own position, and makes significant inaccuracies.

Bonus points

Writing abstracts for a conference – 5 points.

Writing and publishing an article on a topic studied as part of the academic discipline in a professional journal of at least category B – 5-10 points.

Participation in the second round of the All-Ukrainian Olympiad – 10 points.

Active work in lectures: participation in discussions on problematic issues – 1-2 points.

Conditions for a positive interim assessment:

To receive a "pass" on the first interim assessment, a student must have at least 12 points; to receive a "pass" on the second interim assessment, a student must have at least 24 points.

Conditions for admission to the exam:

The condition for a student's admission to the exam is to receive a preliminary rating of at least 24 points.

Table of correspondence between rating points and grades on the university scale:

Rating applicant (points)	*University scale for assessing the level of acquired competencies (learning outcomes)*
100-95	Excellent
94	Very good
84	Good
74-65	Satisfactory
64-60	Sufficient
Less than 60	Unsatisfactory

Possible marks in the semester control report:

Not admitted	Failure to meet the conditions for admission to semester control
Removed	Violation of the principles of academic integrity or moral and ethical standards of conduct
Did not appear	The applicant was admitted but did not appear for the exam

Review of the rating system of assessment during the semester

The RSO may be reviewed upon a reasoned request from the applicant studying the OK, the student self-government body or the student trade union committee, submitted to the head of the supporting department. The review procedure is defined in Section 7 of the Regulations on the system of assessment of

learning outcomes at Igor Sikorsky KPI https://osvita.kpi.ua/sites/default/files/downloads/Pologennia_RSO_2025.pdf

9. Additional information on the discipline (educational component)

Recommendations for students

During lectures, students should take notes on the main concepts, characteristics, classifications, definitions, and algorithms discussed by the lecturer. This will allow students to better present their position (opinion), critically evaluate the positions (opinions) of other students, and ask questions to the lecturer and other students. This will increase the amount of material learned and the depth of understanding. When preparing for a practical class, it is advisable for students to study the lecture material on a specific topic and familiarise themselves with additional resources in the bibliography. If a student has not familiarised themselves with the educational material, they should listen more carefully to the speakers and try to compensate for their lack of preparation for the class with the information they receive. Students should not refuse to answer the teacher's questions. Even if a student does not know the answer, it is advisable to try to answer, express their opinion based on their own knowledge, experience, the logic of the question, etc. At the same time, there is no need to be afraid of making mistakes – one of the important tasks of studying social sciences and humanities is to develop skills in logical thinking, conducting discussions and expressing one's own opinions. However, it is worth remembering that ignorance of the subject material is a significant shortcoming in a student's work and will negatively affect their overall rating.

If a student misses classes for valid reasons, they can make up for the missed topics by writing creative essays.

Informal distance and online courses

At the request of the applicant, in conditions that do not facilitate regular attendance of classes, it is permissible to study individual content parts of the discipline in asynchronous mode, in particular through distance learning courses and other forms of informal learning. In order for the credits for such courses to be taken into account in the rating system, they must correspond in content to certain topics of the syllabus, and their completion must be agreed with the teacher of the discipline. To confirm completion of informal learning, the student must provide a relevant document (certificate) indicating the name of the courses and their duration in hours. Recognition of informal education results is carried out in accordance with the procedure set out in the relevant Regulations of Igor Sikorsky KPI: https://osvita.kpi.ua/node/179

It is also possible to use other mass open online or offline courses (in whole or in part) subject to agreement on their subject matter and content with the lecturer.

Appendix 1.

Assignments for the Modular control work.
Writing an essay (up to 5 pages).
Topic of your choice:

The topic of the essay is chosen by the student from the proposed list. The essay should demonstrate the students' ability to apply the concepts and tools of digital data sociology covered in the course, as well as their ability to formulate a reasoned position and work with scientific sources.

Essay topics (choose one topic)

1. Digital platforms as a space for the production of social data and their impact on the boundaries between private and public.
2. Can users' digital traces be considered reliable indicators of social behaviour?
3. Ethical dilemmas of online data collection in sociological research without programming.
4. Sociological risks of constructing research datasets from digital platform data.
5. The architecture of intelligent platforms and the formation of structural inequality.
6. Recommendation systems as mechanisms of social influence and information selection.
7. Algorithmic profiling as a new form of social categorisation and its consequences.
8. Behavioural patterns in digital ecosystems: opportunities and threats for sociological analysis.
9. Digital text analytics as a method for studying public communications.
10. Analysis of online networks: how social interaction is changing in the context of platformisation.

11. Interactive visual analytics: can visualisation replace sociological analysis?
12. Algorithmic moderation as a form of public communication management.
13. Explainability of intelligent systems and challenges of trust in an algorithmic society.
14. Algorithmic bias in digital data: causes, consequences, social risks.
15. Social transformations caused by the introduction of intelligent systems and their impact on the structure of interaction.

When writing an essay, demonstrate your own position on the topic of the essay and the issues raised in the publications, and adhere to the following structure:

Introduction. The first few sentences should define the topic of the essay, the purpose and intentions of the author of the publication in researching a particular issue.

Main part. This part should examine in detail the main ideas, arguments and examples of the author of the publication.

Conclusions. In this part, you should present your general conclusions. Did the author succeed in researching a particular issue to a satisfactory level? What are the suggestions or recommendations for further research on this topic?

Bibliography. If you have used any sources for your essay, you must list them in the bibliography. In this case, references to the literature used are mandatory in the text, for example [3, p. 5], which means a reference to source No. 3 in the list of references on p. 5. References to electronic sources (Internet articles, videos) are not marked with a page number. Then the reference is formatted (as an example) as follows: [4], which means a reference to source No. 4.

Appendix 2.

Questions for exam preparation.

1. What is the specificity of social data from digital platforms and what properties make them a new type of empirical material for sociology?
2. How do digital traces reflect the behavioural and communicative patterns of users, and what are the theoretical limitations of their interpretation?
3. What methods of online data collection can be used by sociologists without programming, and what are the risks associated with their use?
4. What are the principles for building a research dataset from digital information, and what are the typical sources of distortion to consider?
5. What structural elements form the architecture of intelligent platforms and how do they influence social interaction?
6. How do recommendation models function and how do they shape personalised content visibility?
7. What is the mechanism of algorithmic audience profiling and what are the sociological consequences of segmentation?
8. What tools can be used to identify behavioural patterns in digital ecosystems, and what approaches are used to analyse them?
9. What is the specificity of intellectual analysis of digital texts and what opportunities does it open up for the study of public communications?
10. What are the sociological possibilities and limitations of analysing online networks and interaction structures?
11. What principles underlie interactive visual analytics, and how does visualisation influence the interpretation of social data?
12. What models of automated moderation do digital platforms use, and what are the social effects of algorithmic control of information flows?
13. What does the explainability of intelligent systems mean, and why is it a key factor in building trust in algorithms?
14. What types of bias arise in digital data and algorithms, what are the reasons for their formation, and how can risks be minimised?
15. What social changes does the introduction of intelligent systems bring about, and how do these changes affect the structure of contemporary social processes?
16. What is the difference between user-generated data and platform-generated data, and what does this mean for research?

17. Why can algorithmic selection of information be considered a new mechanism of social influence?
18. What is the analytical potential of digital metadata and how is it used in sociological interpretations?
19. Why does sociological analysis of platforms require an understanding of the technical principles of intelligent systems?
20. What is the relationship between the structure of algorithms and the formation of digital inequality?
21. How is the logic of social interaction changing in the environment of algorithmically controlled platforms?
22. What is the methodological value of combining quantitative and structural analysis of digital data?
23. What types of social processes are best analysed using data from digital platforms?
24. What risks arise when digital data replaces traditional sociological sources of information?
25. How can the principles of algorithms distort public communications and form information "corridors of visibility"?
26. What approaches allow us to identify hidden structures of social interaction in network data?
27. What is the role of digital platform interfaces as elements of social construction of reality?
28. What role does representativeness play in working with digital data, and is full representativeness possible in the platform environment?
29. Why do algorithmic solutions often remain opaque, and what are the sociological consequences of their "black box"?
30. What methods allow us to analyse large-scale communication events in the digital environment?
31. Why can intelligent systems create new modes of social control and surveillance?
32. How do technical and social factors interact in the processes of forming digital traces?
33. What potential misinterpretations arise when analysing behavioural data?
34. How do machine learning principles influence the logic of recommendations on social platforms?
35. What criteria for evaluating the effectiveness of social algorithms are relevant from a sociological point of view?
36. How do algorithmic personalisation and social manipulation differ?
37. What theoretical approaches allow us to explain the interaction between the user and the algorithm as a mutual construction of reality?
38. How do digital ecosystems shape new forms of collective behaviour?
39. What ethical issues arise when researching social network data?
40. Why can the introduction of intelligent systems change the structure of social trust and public interaction?

Distance learning
Synchronous distance learning is possible using video conferencing platforms and the university's distance learning educational platform.

Inclusive learning
Permitted

The working programme of the academic discipline (syllabus):
Compiled by Associate Professor of the Department of Sociology, Doctor of Social Sciences, M.P. Kukhta.
Approved by the Department of Sociology (Minutes No. 14 of 23.06.2025)
Approved by the Methodological Commission of the Faculty (Minutes No. 4 of 24 June 2025)