**Course Syllabus**

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| Title of the course | **Simulations and Experiment in Social Sciences (offered in English)** |
| Title of the Academic Programme  | MA Modern Social Analysis |
| Type of the course  | Elective |
| Prerequisites | Basic statistics skills (small R or Python experience recommended), Sociological Theory |
| ECTS workload | 4 |
| Total indicative study hours | Directed Study | Self-directed study  | Total |
| 32 | 120 | 152 |
| Course Overview |  The course on *Simulations and experiments in social sciences* covers two important (both in science and in practice), but underrepresented in traditional sociological curricula, research approaches: experiments and simulations (mostly agent-based models) in social science. We focus (1) on contemporary approaches of explanation in social sciences and (2) on the set of methodological and software tools, enabling a social research relevant in ‘big data’ age. The theoretical part of the course introduces theoretical frameworks serving as the foundation of model building in social science. The practical part allows to get hands-on experience with analytical techniques and tools of Computational Social Science with a focus on (web-) experiments, decision- and agent-based models. We will discuss and practice explanatory mechanism construction and get skills necessary to analyse human behaviour in contemporary social settings, including cases when natural experiments are impossible or inefficient. In addition, we will discuss applications of social experiments and simulations in applied settings, including web- and business analytics, and User eXperience, e.g. A/B and multivariate testing, field UX experiments, allowing students to see applications of research skills to real world settings. |
| Intended Learning Outcomes (ILO) | Upon the course completion, students are expected to be able to:* Choose an appropriate framework to analyse human decisions on micro and macro-level
* Analyse, criticize and improve simple web- and agent-based designs of existing studies
* Develop the explanatory mechanism on a phenomenon of interest
* Implement a theoretical model constructed into an academic research or industrial analytics task

Use contemporary methods and tools to design experimental or simulation study in academic setting |
| Teaching and Learning Methods | Teaching and learning methods include tutorials, seminars, group work,home assignments |
| Content and Structure of the Course |
| **№** | **Topic / Course Chapter** | **Total** | **Directed Study** | **Self-directed Study** |
| **Lectures** | **Tutorials** |
| 1. | Theory construction and model building in social science | 20 |  | 2 | 18 |
| 2. | Social research at the digital age. Big data and social research. Observational techniques based on big data. Asking vs observing | 40 |  | 6 | 34 |
| 3. | Experimental studies in social science. Web-experiments, gamification of experiments | 24 |  | 8 | 16 |
| 4. | Simulation. Mechanism-based explanations in social science | 28 |  | 8 | 20 |
| 5. | Applied settings for ABM and experimental research. Web- and business analytics, user experience and human-computer interaction | 40 |  | 8 | 32 |
| **Total study hours** | **152** |  | **32** | **120** |
| Indicative Assessment Methods and Strategy  | Course assessment includes:* routine tasks based on readings, cases and seminar activity, accounting for 20% of the final grade
* two essay papers, accounting for 20% each
* two projects, accounting for 20% each

The method of rounding the final grade: arithmetic. |
| Readings / Indicative Learning Resources | Mandatory:1. Wilensky, Uri, and William Rand. 2015. *An Introduction to Agent-Based Modeling: Modeling Natural, Social, and Engineered Complex Systems with NetLogo*. MIT Press. <https://ebookcentral.proquest.com/lib/hselibrary-ebooks/detail.action?docID=3339969>

Optional:1. Manzo, Gianluca, ed. 2014. *Analytical Sociology: Actions and Networks*. 1 edition. Hoboken: Wiley. <https://ebookcentral.proquest.com/lib/hselibrary-ebooks/detail.action?docID=1650830>
2. MacKenzie, I. Scott. 2013. *Human-Computer Interaction: An Empirical Research Perspective*. 1 edition. Amsterdam: Morgan Kaufmann. <https://library.books24x7.com/toc.aspx?bookid=51038>
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| Indicative Self- Study Strategies | **Type** | **+/–** | **Hours** |
| Reading for seminars / tutorials (lecture materials, mandatory and optional resources) | + | 34 |
| Assignments for seminars / tutorials / labs | + | 16 |
| E-learning / distance learning (MOOC / LMS) | - |  |
| Fieldwork | - |  |
| Project work | + | 40 |
| Essay Writing | + | 20 |
| Preparation for the exam | + | 10 |
| Academic Support for the Course | Academic support for the course is provided via LMS, where students can find: guidelines and recommendations for doing the course; guidelines and recommendations for self-study; samples of assessment materials |
| Facilities, Equipment and Software | R for Windows, R-Studio |
| Course Instructor | Ilya Musabirov MA MSc, Senior Lecturer, Department of Informatics |