

MASTER OF SOCIAL INFORMATICS

University of Ljubljana
Faculty of Social Sciences



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MASTER OF SOCIAL INFORMATICS

The Master's program of Social Informatics (MSI) at the Faculty of Social Sciences of the University of Ljubljana (Slovenia) is designed to prepare students for emerging professional careers. It deals with the challenges and opportunities of an increasingly digitalized and data-driven world. With social media and Internet services becoming the key drivers of social development, graduates of social informatics play a significant role in the analysis, design, evaluation, and management of services generated by the ubiquitous presence of information and communication technologies across various social domains.

The MSI program caters for students who would like to contribute to shaping the digital future by having an interdisciplinary understanding of existing and emerging technologies. Students will gain the ability to design digital devices and online services, and assess their impact on individuals and commercial and public organizations with state-of-the-art statistical and computational methods. The MSI program caters for students with a wide variety of backgrounds and undergraduate degrees: from sociology, psychology, business and marketing, media and communications to statistics, computer science and engineering.

The MSI program is highly interdisciplinary and flexible, giving students a unique opportunity to satisfy their personal interests, while providing them with a solid foundation of core knowledge. During the two-year MSI program, students undertake core courses on data analytics and statistics, social science methods, project management, and internet studies. In addition, students tailor their degree program by attending courses as part of one of the two study modules: Data Analytics (DA) and Digital Services Design (DSD). DA courses focus on big data and network analysis, statistical programming, and online research methods, whereas DSD courses teach how to design user-friendly digital services, evaluate user experience, market digital innovations, and create and manage online content. A distinctive feature of the MSI program is the integration of conceptual knowledge with practical experience. In the second study year, students must earn credits by taking part in an internship at a company. In addition, many courses host guest speakers and/or run hands-on projects where students work in collaboration with real-world local clients. Through such practical engagement in an entrepreneurial environment, students will gain a solid foundation to further their careers anywhere in the world.

Students of the MSI program can upgrade their studies by participating in international partnering programs offered by the Faculty of Social Sciences of the University of Ljubljana. The MSI program provides an ideal basis to continue studies at a PhD level.

DATA ANALYTICS

1st year

Winter Semester	ECTS
Foundations of data analytics	6
Social sciences research methods	3
Statistical programming	9
Analysis of large networks / Big data analysis	6
Interactive technology design / Strategy for the development of digital services	6

Spring Semester

Project management in the information society	9
ICT and society	9
Open elective course 1	6
Data visualization and explorative data analysis / Digital technologies in social science research	6

2nd year

Winter Semester	ECTS
Analysis of large networks / Big data analysis	6
Internship	6
Master thesis	12
Open elective course 2	6

Spring Semester

Master thesis	18
Data visualization and explorative data analysis / Digital technologies in social science research	6
Online communities / User experience research	6

DIGITAL SERVICES DESIGN

1st year

Winter Semester	ECTS
Foundations of data analytics	6
Social sciences research methods	3
Digital presence practicum	9
Interactive technology design / Strategy for the development of digital services	6
Analysis of large networks / Big data analysis	6

Spring Semester

Project management in the information society	9
ICT and society	9
Open elective course 1	6
Online communities / User experience research	6

2nd year

Winter Semester	ECTS
Interactive technology design / Strategy for the development of digital services	6
Internship	6
Master thesis	12
Open elective course 2	6

Spring Semester

Master thesis	18
Data visualization and explorative data analysis / Digital technologies in social science research	6
Online communities / User experience research	6

REQUIRED CORE COURSES

Foundation of data analytics

Social science research methods

ICT and society

Internship

Master thesis

Project management in the information society

FOUNDATION OF DATA ANALYTICS

Required
Core Course

6 ECTS, 45h
Winter Semester

Dr. Katja Lozar Manfreda, Assoc. Prof.

The course covers basic statistical concepts and tools for data analytics in social sciences, from asking the right questions which can be answered using data analysis, through data management, data visualisation, analysis and inference, to the dissemination of results.

SOCIAL SCIENCE RESEARCH METHODS

Required
Core Course

3 ECTS, 30h
Winter Semester

Dr. Valentina Hlebec, Prof.

Basic methodological principles/paradigms (positivist, interpretative, critical, postmodern paradigms), research designs and processes in qualitative and quantitative research, ethics in scientific research, sampling.

ICT AND SOCIETY

Required
Core Course

9 ECTS. 60h
Spring Semester

Dr. Sara Atanasova, Assist. Prof.

The baseline of this course is a finding that despite the growing role of information and communication technologies in public and private life, the public discourse offers a predominately simplified or even misleading understanding of mutual relationships between technologies and social processes. The first phase of the course follows the inductive approach through which students gain descriptive knowledge about relevant global phenomena in the field of social aspects of information and communication technologies (The topics are dependent on relevant topics, but are essentially related to the field of social movements, questions of Internet governance, mobile phones, Internet of things and related phenomena). Students on the basis of introspection and group discussion form starting research hypotheses related to the examined social phenomena.

In the second phase, students gain knowledge about fundamental paradigms of relationship between technology and society: technological determinism, utopianism and disutopianism, social constructionism, social shaping of technology, social informatics, actor-network theory. Students also learn about key theories of information society, their criticisms and various modes of measuring and monitoring social aspects of information and communication technologies. On the theoretical basis students critically evaluate and improve starting hypotheses about the chosen social phenomena, which are eventually presented in a form of a seminar paper.

INTERNSHIP

Required
Core Course

6 ECTS, 30h
Winter Semester

Dr. Vasja Vehovar, Prof.

The conceptual design of the course is similar to that of the bachelor's degree. The course is about the transfer of knowledge and skills gained during the study to the selected organisation. Similarly to the bachelor's degree, practical training can be performed abroad, especially as a part of different international schemes (e.g. Erasmus). Specifics and additional emphasis of the practical course at the master's degree level is in the more active involvement of the students in the work-related problems.

On this basis, it is recommended that students consider the issues they were involved with at the practical training in the organisation to be developed and upgraded for the master thesis. Such an approach is also an incentive for the organisations, as otherwise, they might not be interested only in a short one-month job coaching. Namely, in such a short time, it is impossible to train the student for complex tasks, whereas simple tasks are not appropriate for the master's degree level.

On the other side, with a problem-based master thesis, the organisation could gain specific added value. Furthermore, this sort of integration increases the involvement and motivation on both sides.

MASTER THESIS

Dr. Valentina Hlebec, Prof.

Required
Core Course

30 ECTS, 30h
Spring & Winter
Semester

This course will guide students to prepare a proposal for a master's thesis and to design and carry out research work for the master thesis. Students will commit to a specific research topic, based on a given list of topics or select their own research based on an agreement with a selected mentor.

PROJECT MANAGEMENT IN THE INFORMATION SOCIETY

Dr. Vesna Dolničar, Assoc. Prof.

Required
Core Course

9 ECTS, 60h
Spring Semester

Students get familiar with:

1. definition of project management (PM),
2. phases, processes and management in PM,
3. PM planning (e.g. activity plan, time scheduling of the „work packages“, work breakdown structure, critical path, proposal writing, quality, costs),
4. organization (e.g. organization of teamwork, virtual collaboration...).

Students will be acquainted with the specifics of agile management and management of projects in the social sciences and the information society.

MODULE DATA ANALYTICS

Data visualization and explorative data analytics

Big data analytics

Analysis of large networks

Statistical programming

Digital technologies in social science research

DATA VISUALIZATION AND EXPLORATIVE DATA ANALYTICS

Required
Module Course

6 ECTS, 60h
Spring Semester

Dr. Aleš Žiberna, Prof.

Data visualization basics, the use of graphical elements and colors in graphs, principles of good data visualization, simple graphs and infographics, visualizing of different types of data (time series, geographical/maps, text, networks ...), visualizing of multivariate data, outliers identification, dimension reduction, explorative data analysis, dynamic and interactive graphs (with emphasis on graphs for web pages).

BIG DATA ANALYSIS

Required
Module Course

6 ECTS, 60h
Winter Semester

Dr. Damjan Škulj, Assoc. Prof.

1. Big data
2. Data mining overview
3. Text mining
4. Web mining
5. Fields of data mining applications

ANALYSIS OF LARGE NETWORKS

Required
Module Course

6 ECTS, 60h
Winter Semester

Dr. Andrej Mrvar, Prof.

Obtaining large networks from different electronic sources (e.g. Internet). Large networks and complexity of algorithms. Different network models (Small world, Scale free, Bernoulli/Poisson), generating large random networks. Local and global views, searching for important parts in networks (cores, triads, fragment searching, islands, community detection – Louvain and VOS). Network multiplications. Determining important vertices and lines in acyclic networks (e.g. citation networks). Kinship relations as large social networks. Visualization of large networks, FishEye. Computer programs for analysis and visualization of large networks (Pajek).

STATISTICAL PROGRAMMING

Required
Module Course

9 ECTS, 60h
Winter Semester

Dr. Aleš Žiberna, Prof.

R basics: - data types and data structures - data import, export and manipulation - introduction to programming in R (loops, conditional execution, writing functions) - overview of statistical methods.

Producing reports and web presentations: - basic use of the system for reproducible computer supported statistical reports and web presentations - producing simple statistical web applications using Shiny system.

Additional topics (selection): - statistical simulations - automatics data acquisition.

DIGITAL TECHNOLOGIES IN SOCIAL SCIENCE RESEARCH

Required
Module Course

6 ECTS, 60h
Spring Semester

Dr. Katja Lozar Manfreda, Assoc. Prof.

The course brings content which is specific for social sciences when speaking about data science and data analytics. While data science usually focuses on management, visualization and statistical data analysis, this course focuses on the usage of digital technologies for collecting data in social sciences, including classical social science methods, such as surveys and qualitative methods. In addition, it also focuses on the integration of »classical« social science data with big data as a prevalent type of data in modern quantified society, and also focuses on selected aspects of modern research process.

Topics:

1. Type of data in the digital environment.
2. Digital technologies as a tool to collect primary data.
3. Issues in secondary data on the web.
4. Integration of different approaches.
5. Selected approaches to data analysis, organization and management in the digital environment: computer-assisted analysis of qualitative data, analysis of web metrics, analysis and visualisation of geolocation data.
6. Selected aspects of the modern research process, assisted by digital technologies.

MODULE DIGITAL SERVICES DESIGN

Digital presence practicum

Interactive technology design

Online communities

User experience research

Strategies for the development of digital services

DIGITAL PRESENCE PRACTICUM

Required
Module Course

9 ECTS, 60h
Winter Semester

Dr. Andraž Petrovčič, Assoc. Prof.

This course introduces students to the understanding of digital presence and the basic principles of web strategy. It gives an insight into a complex field characterized by an intersection of several disciplines: informatics, methodology, data analytics, design, HCI, communication sciences, sociology, psychology, economics, business, and marketing. The course introduces students to the project management process for understanding and designing a digital presence, focusing on communication with clients, designers, technical experts, and subcontractors.

Coursework includes case studies and hands-on activities that familiarize students with digital presence challenges in terms of digital marketing and integration of website content with social network sites.

INTERACTIVE TECHNOLOGY DESIGN

Required
Module Course

6 ECTS, 60h
Winter Semester

Dr. Vesna Dolničar, Assoc. Prof.

This course introduces students to the iterative design process with involving users in all stages of research and development of interactive technologies.

A series of lectures will aim to introduce:

1. the theoretical views on and approaches to the development of new technologies and services and technology acceptance,
2. underlying principles, components and phases of different approaches to participation in interactive technology design,
3. tools and techniques for user-centred and participatory design,
4. examples of cases that will demonstrate the range of applications of user-centred and participatory design.

ONLINE COMMUNITIES

Required
Module Course

6 ECTS, 60h
Spring Semester

Dr. Gregor Petrič, Prof.

The course consists of a theoretical and analytical part. In the theoretical part, students will get acquainted with theoretical and conceptual approaches to investigation and understanding of online communities. In the analytical part, students will use different methodological approaches for the analysis of particular phenomena.

USER EXPERIENCE RESEARCH

Required
Module Course

6 ECTS, 60h
Spring Semester

Dr. Andraž Petrovčič, Assoc. Prof.

This course covers the conceptual frameworks and applied methodologies for user experience research. The focus of the course is on learning and mastering a variety of usability assessment methods/techniques such as usability testing, usability inspections, surveys, interviews, and focus groups, as well as field methods.

In the first part, students will get acquainted with central notions and the history of user experience research in the context of usability assessment methods and the HCI. They will also gain knowledge about the interdisciplinary nature of user experience research and its role in the design of systems.

In the second part, students will be introduced to usability research standards, ethical and legal aspects of user experience methods, and the general aspects of user requirement activity. In the third part, they will learn the basic techniques of these methods, their strengths and weaknesses, their measurement characteristics, their experimental and (non)experimental design properties, their validity and reliability, and how they are being applied to product development and assessment across various stages of the product design cycle.

STRATEGY FOR THE DEVELOPMENT OF DIGITAL SERVICES

Required
Module Course

6 ECTS, 60h
Winter Semester

Dr. Darja Grošelj, Assist. Prof.

The aim of the course is to acquaint students with:

1. a broader insight into the meaning and design of digital services in contemporary societies;
2. trends of digital services in economic, political and social terms;
3. the display of the legal, business, marketing and technological implications of the development of digital services;
4. the general marketing approach, the creation of business plans, the analysis of the market potential and the development of a marketing strategy for digital services.



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