Programme curriculum for the MASTER'S PROGRAMME IN SOCIAL DATA SCIENCE, THE 2020 CURRICULUM COMMENCEMENT ON 1 SEPTEMBER 2020

The programme curriculum is currently under review. Changes to the programme curriculum are expected to be made in the course of April 2020.
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1. Introduction
This programme curriculum should be read in conjunction with the Curricula's Common Part for the Faculty of Social Sciences, which applies to all bachelor and master’s degree programmes run by the faculty. The Curricula’s Common Part lays out rules that apply to all of the faculty’s programmes.

2. Title and affiliation
Graduates who have completed the master's degree programme in Social Data Science are entitled to use the title of Master of Science (MSc) in Social Data Science. The corresponding title in Danish is candidatus / candidata societatis (cand.soc.) i Social Datavidenskab.

The MSc in Social Data Science is an interdisciplinary programme based across departments at the faculty of Social Sciences at UCPH. Social Data Science has a board of studies. The administrative affiliation is with the Faculty of Social Sciences. The Board of Examiners is that of the Department of Sociology.

3. The programme’s objectives, competency profile, etc.

3.1 Objectives
The University Programme Order stipulates that:
- The purpose of the master's programmes in the social science area is to qualify the student to identify and analyse complex social phenomena and to apply theoretical and methodological knowledge and skills within a wide range of professions in the public and private sectors.
- The master's programmes include one or more social science subjects or other subjects relevant to the work of a social science graduate.

In addition to the above points, MSc in Social Data Science programme has the following specific purposes:
1. Providing students with the opportunity to improve their skills and specialise in both the social science aspects and data science aspects of social data science, as well as working with other social science disciplines.
2. Providing students with further academic knowledge, theoretical qualifications and methodological competencies to enable them to independently identify, formulate and solve advanced complex issues within the social science aspects of social data science.
3. Providing students with the basis for undertaking relevant job functions and qualifying them for enrolment in a PhD programme in social data science or in one of the core social sciences.

3.2 Competence profile
During the programme, students will acquire the knowledge, skills and competencies listed below to both work and conduct research in the field of social data science. Students will also acquire
additional individual qualifications through elective courses as well as field and project work, and through writing an MSc thesis.

Graduates have the following qualification profile on successful completion of the programme:

**Knowledge**
- List, explain, and interpret methods of Social Science and concepts relevant to Social Data Science.
- Account for the ethical, legal, and political framework for and consequences of how a given dataset was obtained and applied to analysis.
- Explain fundamental properties of individual and social behaviour, networks, and ideas based on a reflective application of quantitative and qualitative methods as well as models and theories from multiple disciplines in Social Science.
- Account for the new possibilities that digital and other big and social data types afford for research of contemporary problems in business and in society.
- Explain how quasi-experimental methods can be used to establish causality and measure the effect sizes of policies.

**Skills**
- Master state of the art programming language for collection, processing, preparation, and analysis of data.
- Employ state of the art data science tools, including methods from supervised and unsupervised machine learning, web scraping, network analysis, visualization, special analysis, natural language processing etc. to the analysis of societal and organizational problems.
- Combine quantitative and qualitative empirical methods from Social Science, including statistical analysis, ethnographic methods, digital methods, and experimental methods with Data Science tools in order to analyse complex societal and organizational problems.
- Analyse, qualify and independently apply big and complex data in, among other things, value-generating activities in business, public administration, and civil society.
- Identify the societal potential of and challenges to working with ‘big data’.
- Assess and present arguments for and against the quality of own as well as others’ application of statistical methods, datasets, and analytical approaches, including assessing the ethical, legal, political, and societal consequences of the produced knowledge.
- Communicate research-based knowledge from own and others’ research in writing, visualization, and speech, and discuss societal and scientific problems with fellow Social Data Scientists and non-experts alike.

**Competencies**
- Independently plan, lead and complete a social data science study/examination/research aimed at obtaining new knowledge to help overcome challenges in business and society.
This entails designing, executing and analysing complex and big data projects with multiple data types concerning behaviour, networks, and ideas. The data types include but are not limited to data on individuals and social relations from surveys, registries, experiments as well as online platforms and ethnographic studies and may come in the form of text and image data, temporal and spatial.

- Manage the legal and ethical aspects of collecting and processing personal data as well as making decisions based on the data. This includes fulfilling personal data requirements of the EU as well as handling secondary use of data and questions of reproducibility and validity of implementing data governance in organisations.
- Assess and evaluate the possibilities and limitations of data in for a specific research-related and organisational context as well as convey central concepts from one scientific discipline to others.
- Lead and coordinate cooperation in interdisciplinary teams with people from other scientific fields and traditions in the application of social data science in order to create value in businesses and in society.
- Independently identify and take responsibility for further personal scientific development and specialisation in the private and public sectors alike.

3.3 Admission requirements and restrictions
In order to be admitted into the MSc in Social Data Science, applicants must meet the following requirements:

- Hold one of the following bachelor’s degrees from a Danish university, a bachelor’s degree from a Danish university equivalent to any of the fields below or a bachelor’s degree from a recognised international university equivalent to any of the fields below:
  
  | Agricultural economics | Global business informatics |
  | Anthropology | International business and politics |
  | Business administration and digital management | Mathematic-economics |
  | Business administration and project management | Organisational learning |
  | Business administration and psychology | Political science |
  | Business administration and sociology | Psychology |
  | Data Science | Public administration |
  | Digital design and interactive technologies | Public health |
  | Economics | Social science |
  | Economic and business administration | Sociology |
  | Education Science | Sociology and cultural analysis |
  | European business | Techno-anthropology |
  | European ethnology |

- Or hold a bachelor’s degree from a recognised Danish or international university with at least 30 ECTS from social sciences courses of which at least one should be a practical methods course. Social sciences courses include, among other things, social statistics
courses, ethnography courses and other courses on qualitative or quantitative data collection and analysis; courses on culture, organisation, leadership, innovation, management or related topics which involve empirical data collection, processing or analysis; and bachelor and other self-defined projects which include social data collection, processing or analysis.

- English language proficiency on par with English at Danish B-level with a weighted grade point average of at least 3.0 not rounding up. The requirement may also be met by English on par with Danish A-level with a weighted grade point average of at least 2.0 not rounding up. Go to studies.ku.dk to find out how the Faculty assesses foreign upper secondary school leaving certificates.

There is a restricted intake of students. If more applicants than the maximum intake meet the admission requirements, a selection will be made on the basis of a comprehensive evaluation. Please see the criteria for the prioritization of applicants on https://studies.ku.dk/masters/social-data-science/application-procedure/.

3.3.1 Supplementary courses
Only the applicant’s bachelor’s degree will be considered when the applicant’s academic qualifications are assessed. This means that it is not possible to complete supplementary courses in order to meet the specific admission requirements.

The only exception to this is courses which have been completed before the bachelor’s degree was finished. These courses can either be part of a previous study programme or have been taken as single courses. However no more than 30 ECTS credits from such courses can be considered in the assessment.

4. Content and academic profile
The core subject area in the master’s degree programme is social data science. The table below is an overview of the allocation of subject elements to the master's degree programme in the recommended order. It is possible for the student to put together the individual semesters, subject to the reservation that the student must have passed 60 ECTS to be able to submit the thesis.
The master’s programme in Social Data Science
(120 ECTS)

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<th>Semester 1 (Autumn, year 1)</th>
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<th>Block 2</th>
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<td>Elementary Social Data Science (7.5 ECTS)</td>
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<td>Semester 4 (Spring, year 2)</td>
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### 4.1 Compulsory courses
The programme consists of the following constituent and compulsory courses worth a total of 90 ECTS:

- Social Data Science Base Camp (15 ECTS)
- Elementary Social Data Science (7.5 ECTS)
- Data Governance: Law, Ethics, and Politics (7.5 ECTS)
- Advanced Social Data Science I (7.5 ECTS)
- Social Data Analysis (7.5 ECTS)
- Advanced Social Data Science II (7.5 ECTS)
- Digital Methods (7.5 ECTS)
- Master’s thesis (30 ECTS)

### 4.2 Freedom of choice / elective courses
In the third semester, students can choose to follow elective courses, corresponding to maximum 30 ECTS. Students may follow courses outside of the faculty and the university, but for half of the total credits for elective courses, students must obtain approval before enrollment on relevance. This means that courses corresponding to half of the total credits for elective courses (i.e. 15 ECTS) can be chosen without restrictions on content, and courses corresponding to the other half must be pre-approved as relevant for the Social Data Science degree. Within the Faculty of Social Science any master’s course is eligible. Among elective courses at least one course (7.5 ECTS) has to be graded, i.e. not pass/fail.
4.2.1 Mobility window
The student can choose to spend the third semester studying abroad, taking part in an academic internship or doing field work.

4.3 Registration for courses and exams
Students must themselves register for courses and exams via self-service on KUnet during the announced self-service period prior to each semester. Students will automatically be registered for courses and exams on their first semester.

4.4 Credit
Students on the master’s degree programme in Social Data Science are entitled to transfer a maximum of 30 ECTS from subjects studied at another educational institution in Denmark or abroad. Exempt from this rule are students who transfer credits for course elements when transferring from another institution or study programme and credits from programmes already successfully completed. Read more about the rules and procedures for approval and transfer of credit in section 5.5 of the Curricula’s Common Part.

5. Exam
For general rules on the examination, please see the Curricula’s Common Part section 4.

5.1 Assessment and grading
The assessment of exams is organised in such a way that it complies with the grading requirements in the Curricula’s Common Part and The Examination Order. The following mandatory course, amounting to a total of 15 ECTS, is assessed through a pass/fail examination:
- Social Data Science Base Camp (15 ECTS)

The following mandatory courses, amounting to a total of 75 ECTS, are assessed using the 7-point grading scale:
- Elementary Social Data Science (7.5 ECTS)
- Data Governance: Law, Ethics, and Politics (7.5 ECTS)
- Advanced Social Data Science I (7.5 ECTS)
- Social Data Analysis (7.5 ECTS)
- Advanced Social Data Science II (7.5 ECTS)
- Digital Methods (7.5 ECTS)
- Master’s thesis (30 ECTS)

The following mandatory courses, amounting to a total of 15 ECTS, are assessed by an external examiner:
- Elementary Social Data Science (7.5 ECTS)
- Social Data Analysis (7.5 ECTS)
- Master’s Thesis (30 ECTS)
6. Course catalogue
The courses offered on the master’s degree programme in Social Data Science are outlined below. Subjects and exams are quantified in terms of ECTS (the European Credit Transfer System), under which system 60 ECTS correspond to one year of full-time study. If a subject is weighted at 7.5 ECTS, this will correspond to 1/8 of one year’s prescribed full-time study.

6.1 Social Data Science Base Camp

Course description
This three-part course introduces students to the interdisciplinary degree program of social data science. In the first two weeks, students are introduced to the group-based learning and working practices, which is a core element of the program. During this period, the students will conduct fieldwork-based ethnographic exercises and will be introduced to other qualitative methods and analytics. For the remaining five weeks of the course, students are introduced to the fundamentals of programming and data analysis in Python, covering topics such as algorithms, functions, variables and the social context of programming. In parallel, lectures and exercises will focus on elementary qualitative methods and statistics. Throughout all seven weeks, a weekly lecture series with speakers from within and outside the academy shall present examples and cases spanning the breadth and potentials of the novel field of social data science

Learning outcome
At the end of the course, the students are able to:

Knowledge
- Define basic concepts within programming, statistics, and qualitative methods.
- Account for central themes and research questions within the field of social data science.
- Gauge the landscape of applications and tools for data science and their respective purposes.
- Account for the history and social implications of social data science methods.

Skills
- Perform elementary programming tasks, including designing a program to collect data from an API.
- Flexibly structure, merge, and reformat data coming from various sources and in different forms, including both quantitative and qualitative.
- Conduct exploratory data analysis using descriptive statistics and visualization methods.
- Reflect on the combination of ethnographic with other social data science methods.

Competencies
- Evaluate and apply best practices in data science programming.
- Work with and analyse data in interdisciplinary teams.
● Communicate social data science insights using basic data visualization and appropriate statistical methods.
● Identify and design potential solutions to common problems arising from new data sources, such as text and other unstructured data types.

Extent
The course amounts to 15 ECTS credits.

Teaching and working methods
Lectures, seminars, group work, exercises and coding tutorials

Exam form
Written exam. More information will be made available in the middle of April 2020.

6.2 Elementary Social Data Science

Course description
This course provides students with a comprehensive introduction to the central concepts and research processes that inform the field of social data science. The course introduces and offers basic experience with important research methods of Social Data Science, covering classic approaches such as experiments and surveys, new approaches such as “big data” analysis and machine learning, as well as their intersection. The course structure follows an ideal form of the research process with three interconnected blocks. The first block reviews the research design stage, including generating research questions and hypotheses as well as evaluating different research approaches. The second block surveys prominent tools for data collection. The third block provides an overview of the methods available to analyse quantitative data, centring regression analysis. In all, the course prepares students to conduct basic social data science research and to acquire advanced methods in later courses.

Learning outcome
At the end of the course, the students are able to:

Knowledge
● Explain the principles of empirical social science informing both quantitative and qualitative research.
● Account for a broad variety of data collection methods used in the social sciences, as well as their strengths and weaknesses.
● Account for the fundamental data analysis methods in social data science, as well as their strengths and weaknesses.
● Explain common criteria for high-quality, replicable social science research.
Skills

- Read, interpret, and produce pre-registrations of social science research.
- Collect primary data using survey and experimental methods.
- Collect secondary data from online sources using web scraping, online archives, and API’s.
- Develop social science research designs including generating research questions, operationalizing theoretical concepts, and following best practices.
- Conduct basic qualitative and quantitative data analysis, specifically basic regression analyses.

Competencies

- Evaluate and critically reflect on published social science research by applying the highest international standards.
- Identify opportunities to use digital data sources and apply computational methods to generate novel social scientific insights.
- Plan and conduct high-quality social data science research projects, encompassing the research design, data collection, and data analysis stages.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
Lectures, seminars, group-work and exercises.

Exam form
Written exam. More information will be made available in the middle of April 2020.

6.3 Data Governance: Law, Ethics, and Politics

Course description
Social big data brings a range of ethical, legal and political challenges. From the ethics of individual privacy to legal frameworks such as GDPR and national legislation regulating tech giants, new data governance issues surface rapidly. This course introduces key legislation, as well as political and ethical procedures and debates around the governance and security of data. Students are taught how to make data collection and processing compliant with ethics and legal requirements. The course provides students with the necessary knowledge and skills regarding data protection and data management, complementing the social data science and programming skills they have acquired in the courses Introduction to Programming and Elementary Social Data Science, as well as the courses that follow in the second semester on the master’s programme.

Learning outcome
At the end of the course, the students are able to:
Knowledge

- Account for ethical, legal and political aspects and consequences of the collection and use of social big data for a given administrative or commercial purpose.
- Gauge key legal and social science (anthropology, sociology, political science, etc.) concepts, ideas and debates pertaining to the use of social big data in private (profit and non-profit) and public contexts.
- Show familiarity with the content and implications of national and EU legal frameworks for data collection, usage and storage (i.e. GDPR).

Skills

- Explain and evaluate the quality of one’s use of methods, datasets and analytical approaches in relation to the ethical, legal and political consequences of data governance.
- Communicate central questions around data ethics – academic as well as policy-oriented – to peers and non-experts.
- Identify legal, ethical and political issues regarding a concrete data governance problem in an organizational context.
- Identify and analyse key analytical steps and organizational procedures in data governance and management, from problem to solution.

Competencies

- Comply with and navigate existing legislation, rules and ethical frameworks for personal data management and governance, including the EU Personal Data Regulation (GDPR).
- Critically assess possibilities and risks associated with uses of data in implementing data governance policies and rules in organizations and institutions based on ideas stemming from anthropology, law, political science and other social sciences.
- Navigate concrete cases of data governance, including identification of problems, risk assessment, final proposal and pilot check of new governance schemes.
- Design efficient, ethically and legally sound procedures for managing data, including data stewardship, ownership, compliance, privacy, data risks, data sensitivity and data sharing.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
The course combines lectures, workshops, quizzes, group exercises, student presentations and peer-feedback seminars. There will be guest lectures by experts, especially with respect to GDPR and Danish legislation.
Exam form
Written exam. More information will be made available in the middle of April 2020.

6.4 Advanced Social Data Science I

Course description
The course introduces students to advanced quantitative social science methods, supervised machine learning and formal models of networks. The social sciences have developed a number of methods and approaches to inferring causal relations and testing theory based on observational data and ‘found’ data. At the same time, machine learning methods are becoming ever more prominent, both for measurement and analysis. The first part of the course introduces advanced regression models and key research designs for causal identification from observational data in the social science, including regression-discontinuity, difference-in-difference, event studies and instrumental variables. The second part of the course introduces the basic approaches to and methods of supervised machine learning in a social science context. This includes linear models, tree-based classification and (cross)validation. We also introduce the intersection of machine learning and social science empirical methods and to challenges in (re)interpreting ML results through a social science lens, with a focus on ML model explainability and interpretability. Finally, the course introduces basic network concepts and measures to be explored further in the Social Data Theory.

Learning outcome
At the end of the course, the students are able to:

Knowledge
- Show familiarity with advanced regression methods and different research designs for causal inference in the social sciences.
- Describe core concepts and methods in supervised machine learning, including linear models, tree-based classification, overfitting, bias/variance trade-off and cross-validation.
- Provide an overview of empirical issues at the intersection between machine learning and social science and describe challenges of interpretability of machine learning models.
- Define key concepts in the analysis of complex networks.

Skills
- Implement common social science identification strategies to handle problems of endogeneity and selection.
- Set up and execute simple supervised machine learning models for measurement and prediction in Python.
- Explain challenges in applying and learning from ML in a social science context.
- Structure network data in Python, as well as to construct and extract various network measures.
Competencies
- Design and carry out basic analyses of complex social science networks.
- Evaluate and implement appropriate modelling approaches given dataset and objective, i.e. whether the goal is to evaluate a policy, make a model with best fit of the data or construct new measures.
- Critically assess how various research designs and identification strategies can or cannot be applied to questions of causal relationships in observational and ‘found’ data and use this to develop data collection strategies.
- Account for the possibilities and limitations in the use of machine learning in the social sciences and reflect upon contemporary (mis)use of applications of ML in policy and research contexts.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
Teaching combines lectures and classes, with a heavy emphasis on hands-on work with data in Python. Classes will present students with opportunities to apply their knowledge of programming and data handling and structuring from SDS Base Camp and Elementary Social Data Science to more advanced concepts and problems.

Exam form
Written exam. More information will be made available in the middle of April 2020.

6.5 Social Data Analysis

Course description
This course introduces paradigmatic social scientific theories, models, and analyses of human behaviour (e.g. dual process framework, rational choice theory, theory of planned behaviour), social networks (e.g. tie formation, network structure and position, diffusion), and cultural ideas (e.g. discourse analysis, cultural epidemiology and structuralist analysis). Through a combination of lectures, seminars and exercises, it is discussed and demonstrated how classic social science problems and theories can be solved and advanced by using data science methods, and how the study of large-scale social data can benefit from social science thinking. As such, the purpose of the course is to provide an overview of central concepts and debates within social data science research, which can serve as a general analytical backdrop for the other more technically or topically specialized courses in the degree program.

Learning outcome
At the end of the course, the students are able to:
Knowledge
- Account for key social science theories of behaviour, networks and ideas.
- Explain how social data science can be used to inform, test, and develop classic social science theories.

Skills
- Assess the relevance of social data science to advance social science theories.
- Evaluate pros and cons of different social data science approaches to analyse social science issues.

Competencies
- Pose and formulate a social data science research question.
- Develop a social data science research design.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
Lectures, seminars, group-work and exercises.

Exam form
Written exam. More information will be made available in the middle of April 2020.

6.6 Advanced Social Data Science II

Contents
The wealth of new data in the digital society is characterized by high frequency observations in a high granularity setting, allowing for both comprehensive and detailed analysis of social and individual behaviour. Messages in digital form and comments and conversations on social media have the potential to provide thick descriptions of social interactions and individual values in large-scale, sometimes population level, settings. At the same time, digitalization of large corpuses of legal, administrative and political texts allow for dynamic analysis of evolving social ideas and issues. At the same time, most digital data do not arrive in simple accessible, quantifiable and comparable forms, but as text, sound and pictures. Advanced Social Data Science II is focused on unstructured data and methods for processing, transforming and dealing with complex and high dimensional data. The course presents classic unsupervised learning methods for characterizing and developing typologies and categories of individual and social behaviour, networks and ideas. Furthermore, it introduces state-of-the-art methods of self-supervision and transfer learning for classifying complex unstructured data such as text and images, and relates such data-driven
methods to existing theoretical methods and models, as well as quantitative and qualitative methods, in the social sciences.

**Learning outcomes**
At the end of the course, the students are able to:

**Knowledge**
- Explain the differences between and capabilities of neural network architectures such as CNN, RNN, LSTM and Attention based models.
- Account for various learning strategies, algorithms as well as approaches: clustering and unsupervised learning, supervised learning, semi-supervised learning, transfer learning, multi-task learning.
- Account for the potential of different representations, encodings and transformations of text, structured and unstructured.

**Skills**
- Extract reliable information from text data using supervised learning and techniques from natural language processing.
- Handle advanced matrix and tensor manipulation using a major deep learning framework (e.g. PyTorch, TensorFlow)
- Apply state-of-the-art deep transfer learning to classify unstructured data.
- Master computer vision methods to extract features from image data.

**Competencies**
- Integrate theoretical and applied knowledge within the field of Social Data Science and formulate compelling research questions given an unstructured dataset.
- Construct validated and documented data sets for social science from unstructured text and media data.
- Independently carry out an end-to-end analysis given an unstructured dataset of text or images, including exploratory analysis and discovery using unsupervised methods and supervised learning for measurement, and assessment of model-based biases.
- Critically evaluate the implications of results, considering model limitations and biases, and systematic noise introduced by data collection and sampling methods.
- Communicate results using comprehensive statistics and modern visualization methods in particular plotting new data types to specialists within the academic field.

**Extent**
The course amounts to 7.5 ECTS credits.
Teaching and working methods
This class will be taught using a combination of lectures and hands-on lab exercises working with problem sets.

Exam form
Written exam. More information will be made available in the middle of April 2020.

6.7 Digital Methods

Course description
Using digital methods is a specific approach to doing digital social research. In digital methods, focus is placed on the digital media contexts where data is generated as a by-product of social interaction, and on new ways of combining quantitative and qualitative methods of digital inquiry and analysis. This course provides students with practical skills in implementing three sets of computer-assisted qualitative methods: exploratory network analysis, digital ethnography, and content analysis. As such, it supplements the various quantitative techniques taught in other courses on the program, as well as provides tools for mixing qualitative methods with textual and/or visual quantitative data into quali-quantitative social-science analyses. Students train these skills by conducting their own integrated mapping of a public issue, involving networks, ideas, and behaviour across individual and organizational levels and across multiple digital platforms.

Learning outcome
At the end of the course, the students are able to:

Knowledge
- Show familiarity with the basic techniques, use scenarios, and validity criteria of computer-assisted qualitative methods, i.e. digital ethnography, content analysis, and exploratory network analysis.
- Account for the procedures, potentials, and pitfalls of combining qualitative and quantitative data sources, including in integrated quali-quantitative ways.
- Account for the relationship between digital methods’ emphasis on the media contexts of digital data and the broader questions, claims and biases of social data science.

Skills
- Identify the procedures of qualitative content analysis for designing appropriate semantic categories, including for use in subsequent machine learning with quantitative text and/or visual data.
- Extract, and communicate patterns of networks, ideas, and behaviour characteristic of specific social settings and public issues, using the appropriate qualitative method(s).
- Combine qualitative data with a quantitative data source, thereby integrating heterogeneous digital data formats into comprehensive social analyses.

**Competencies**
- Evaluate and analyse a social data problem from both qualitative and quantitative perspectives, including determining when to deploy which method designs.
- Design and implement small-scale digital ethnography campaigns, along with exploratory network analysis and content analysis, to obtain insights into social networks, ideas, and behaviour at individual and organizational levels.
- Combine qualitative and quantitative sources of data, as well as forms of narration and visualization, into persuasive quali-quantitative reports on social data problems for a range of organizational use scenarios.

**Extent**
The course amounts to 7.5 ECTS credits.

**Teaching and working methods**
Teaching combines lectures and in-class method exercises with extensive out-of-class project work. Throughout the course, students train their qualitative method skills by conducting their own project, i.e. digitally mapping a public issue (with some teacher assistance available) chosen from within a unifying theme (e.g. activism, sustainable transition, or similar). In-class exercises gives priority to providing students first-hand skills in closely combining digital data formats into composite social analyses, both qualitative and quantitative, in ways that mirror realistic use scenarios in a range of contexts where data analysis is a key component.

**Exam form**
Oral exam. More information will be made available in the middle of April 2020.

**6.8 Master’s thesis**
The thesis is the conclusion of the degree. Students must place this on their fourth and final semester of the master's programme.

**Contents**
The purpose of the thesis is for students to acquire research-based competencies by conducting a social data science investigation of a problem of their choosing. This includes identifying a problem of investigation through gathering and analysing big social data and applying methodological, theoretical, ethical and legal perspectives in integrating social science and data science.
Learning outcome
The thesis must demonstrate that the students are able to:

Knowledge
- Formulate a precise problem.
- Account for the scientific and social potentials of the investigation or development.
- Relate critically to existing knowledge within this area.
- In connection with the oral defence, the student must demonstrate a command of the methodologies applied in connection with the preparation of the thesis, and must be able to account for the issue of the thesis and its clarification in a clear and comprehensible manner.

Skills
- Structure and argue convincingly while processing the problem.
- If the thesis contains empirical data or algorithms, critically assess the quality and use of it including any legal, ethical, political or other relevant considerations.
- Justify the design and discuss the choice of methodology.
- Apply relevant social science theory in the analysis and present independent observations on it.
- Justify in what sense new knowledge has been generated or new light shed on existing knowledge and qualify this in terms of usefulness, topicality, theory or methodological progress.
- Account for the distinct social science contribution to knowledge made by the analysis and how it is part of a social data science approach.
- Discuss the knowledge produced critically and put it into perspective.

Competencies
- Plan, structure and implement a social data science investigation in accordance with scientific standards.
- If the project is a collaborative investigation with an external partner, take responsibility for coordinating the process with the company/organization.
- Take responsibility for collaboration with fellow student, supervisor, external partner; including handling interdisciplinary differences, political or commercial interests, time schedules etc.
- Independently take responsibility for own academic development.

Extent
The course amounts to 30 ECTS credits.
Registration
Students must register for the thesis in accordance with the rules described in section 4.2.4 of the Curricula’s Common Part. It is not possible to cancel the contract once approved by the University. For a detailed description of the registration procedures see the study pages in KUnet.

More information will be made available in the middle of April 2020.

Exam
The thesis is defended in an oral defence based on the student's written presentation. Oral defence lasts one hour (the student has 20 min to make the presentation) with external examination. The thesis’ written part and the oral exam are given approximately equal weight for the final grade.

More information will be made available in the middle of April 2020.