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 January 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 disciplines within the Social Sciences.
2. Providing students with further academic knowledge, theoretical qualifications and methodological competences 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 competences 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

- Identify, 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.
- 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.
- Demonstrate knowledge about individual and social behavior, 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.
- Identify the societal potential of and challenges to working with ‘big data’.
- Account for 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 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.
- Assess and discuss the quality of own as well as other’s 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 other’s 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 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
  - Anthropology
  - Business administration and digital management
  - Business administration and digital management
  - Business administration and project management
  - Business administration and psychology
  - Business administration and sociology
  - Data Science
  - Digital design and interactive technologies
  - Education Science
  - European business
  - European ethnology
  - Economic and business administration
  - Global business informatics
  - International business and politics
  - Mathematic-economics
  - Organisational learning
  - Political science
  - Psychology
  - Public administration
  - Public health
  - Social science
  - Sociology
  - Sociology and cultural analysis
  - Techno-anthropology

- 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 are 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 taken into account 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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### 4.1 Freedom of choice / Elective courses
*More information will be available around mid-January 2020.*

#### 4.1.1 Mobility window
The student can choose to spend the third semester studying abroad, taking part in an academic internship or doing fieldwork.

#### 4.2 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.

#### 4.3 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
According to the Examination Order not more than 1/3 of a programme’s ECTS credits can be assessed through a pass/failed examination. Further, at least 1/3 of the programme’s exams must be assessed by an external examiner. The individual subject elements are organised in such a way that the programme complies with the grading requirements in the Examination Order.

More information about external grading and pass/fail grading will be available around mid-January 2020.

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 Bootcamp

Contents
This three-part course introduces students to the interdisciplinary field of social data science. The first part introduces the groups and practices that will comprise the basis for the degree. Resting on this, the majority of the course teaches students the fundamentals of programming and data analysis in Python, covering topics such as algorithms, functions, variables and the social context of programming. In parallel, there will be lectures and exercises on qualitative methods and statistics.

More information will be available around mid-January 2020.

Learning outcome
Information will be available around mid-January 2020.

Extent
The course amounts to 15 ECTS credits.

Teaching and working methods
Information will be available around mid-January 2020.
6.2 Elementary Social Data Science

Contents
This course will provide a comprehensive introduction to the concepts and application of data science for advancing our understanding of the social world. The course will be split into three blocks. The first block will summarize the process of generating research questions, research design, and analysis. The second block will introduce prominent tools available for data collection. Finally, the third block will provide an overview of the powerful methods available to analyze data.

More information will be available around mid-January 2020.

Learning outcome
Information will be available around mid-January 2020.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
Information will be available around mid-January 2020.

Exam form
Information will be available around mid-January 2020.

6.3 Data Governance: Law, Ethics, and Politics

Contents
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.

*More information will be available around mid-January 2020.*

**Learning outcome**
*Information will be available around mid-January 2020.*

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

**Teaching and working methods**
*Information will be available around mid-January 2020.*

**Exam form**
*Information will be available around mid-January 2020.*

### 6.4 Advanced Social Data Science I

**Contents**
The course introduces students to advanced quantitative social science methods, machine learning and formal models of networks. We cover limited dependent variables and panel data models as well as regression-discontinuity, difference-in-difference, event studies and instrumental variables. In machine learning, we introduce the basic approaches to and methods of machine learning and the intersection between machine learning and social science methods. For networks, we introduce the basic concepts and network measures and explore them in a social science context.

*More information will be available around mid-January 2020.*

**Learning outcome**
*Information will be available around mid-January 2020.*

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

**Teaching and working methods**
*Information will be available around mid-January 2020.*
6.5 Social Data Analysis

Contents
This course introduces paradigmatic social scientific theories, models, and analyses of human behavior (e.g. dual process framework, rational choice theory, theory of planned behavior), 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 overarching purpose of the course is to provide an overview of the most important concepts, topics and debates within social data science research.

More information will be available around mid-January 2020.

Learning outcome

More information will be available around mid-January 2020.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods

More information will be available around mid-January 2020.

Exam form

More information will be available around mid-January 2020.

6.6 Advanced Social Data Science II

Contents
Most digital data do not arrive in simple accessible, quantifiable and comparable forms, but as text, images, or even sound. The second Advanced Social Data Science course is focused on unstructured data, new data forms, and advanced data structures. The course introduces a set of primarily unsupervised learning methods for analyzing these novel data formats with a focus on deep learning methods. The course also covers issues specific to the preprocessing and analysis of text and image data.
6.7 Digital Methods

Contents
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 well as tools for mixing them with textual and/or visual quantitative data into quali-quantitative social-science analyses. During the course, students work in teams to conduct their own mapping of a public issue (networks, ideas, behavior), chosen from within a unifying theme (e.g. activism, sustainable transition).

Learning outcome
Information will be available around mid-January 2020.

Extent
The course amounts to 7.5 ECTS credits.

Teaching and working methods
Information will be available around mid-January 2020.

Exam form
Information will be available around mid-January 2020.

6.8 Master’s thesis
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 analyzing big social data and applying methodological, theoretical, ethical and legal perspectives in integrating social science and data science.

Learning outcome
Information will be available around mid-January 2020.

Extent
The course amounts to 30 ECTS credits.

Teaching and working methods
Information will be available around mid-January 2020.

Exam
Information will be available around mid-January 2020.