

Master of Science program in Social Data Science

2-year SDS MS program course list

Year 1

Year 1 Requirements					
<i>Modules</i>	<i>Required Credits</i>	<i>Courses</i>	<i>Term</i>	<i>Type M/ME/FE*</i>	<i>ECTS</i>
Bootcamp	0-16 ECTS Depending on prior qualifications	Conceptions of Social Dynamics	Pre-term	FE (ME)	0 (4)
		Introduction to Computer Science	Pre-term	FE	0 (4)
		Mathematical methods	Pre-term	FE	0 (4)
Fundamental Methods of Data Science	20 ECTS	Applied Statistics	Fall	M	4
		Data Analysis in Python	Fall	M	4
		Introduction to Machine Learning	Fall	M	4
		Social Data Mining	Winter	M	4
		Course from the mandatory elective course list of the module	Winter	ME	4
Specialization	12 ECTS	Data Science of Social Sciences	Winter	M	4
		Social Networks 1	Fall	M	4
		Course from the list of specialization tracks	Fall	ME	4
Advanced Methods and Concepts	12 ECTS	Topics for Social Data Science	Fall	M	4
		Digital Data Collection Methods: Opportunities and Risks	Winter	M	4
		Data Visualization	Winter	M	4
Academic writing	4 ECTS	Academic Writing	Winter	M	4
Project 1	12 ECTS	Research internship	Spring	M	12
		Fall Term Credit Total: 24 ECTS Winter Term Credit Total: 24 ECTS Spring Term Credit Total: 12 ECTS Year 1 Credit Total: 60 ECTS			

* M – Mandatory, ME – Mandatory Elective, FE – Free Elective

Year 2

Year 2 Requirements					
<i>Modules</i>	<i>Required Credits</i>	<i>Courses</i>	<i>Term</i>	<i>Type M/ME/FE*</i>	<i>ECTS</i>
Fundamental Methods of Data Science	4 ECTS	Course from the mandatory elective course list of the module	Winter	ME	4
Specialization	8 ECTS	Course from the list of specialization tracks	Fall	ME	4
		Course from the list of specialization tracks	Winter	ME	4
Advanced Methods and Concepts	16 ECTS	Network Science	Fall	M	4
		Ethics of Big Data	Fall	M	4
		Course from the mandatory elective course list of the module	Fall	ME	4
		Course from the mandatory elective course list of the module	Winter	ME	4
Optional Courses	8 ECTS	Free elective MS level course from any programs at CEU PU.	Fall	FE	4
		Free elective MS level course from any program at CEU PU.	Winter	FE	4
Seminar	8 ECTS	Research seminar course	Fall	M	4
		Thesis seminar course	Winter	M	4
Project 2	16 ECTS	Capstone project 1	Winter	M	4
		Capstone project 2	Spring	M	12
Fall Term Credit Total: 24 ECTS Winter Term Credit Total: 24 ECTS Spring Term Credit Total: 12 ECTS Year 2 Credit Total: 60 ECTS					

* M – Mandatory, ME – Mandatory Elective, FE – Free Elective

Modules

Fundamental Methods of Data Science Module (16 ECTS M and 8 ECTS ME)

Name	ECTS	Term	Type
Applied Statistics	4 ECTS	Fall	M
Data Analysis in Python	4 ECTS	Fall	M
Introduction to Machine Learning	4 ECTS	Fall	M
Social Data Mining	4 ECTS	Winter	M
Advanced Machine Learning	4 ECTS	Winter	ME
Mathematics for Advanced Methods and Concepts	4 ECTS	Winter	ME
Different Shapes of Data	4 ECTS	Fall	ME
Bayesian Data Analysis	4 ECTS	Winter	ME

Advanced Methods and Concepts Module (20 ECTS M and 8 ECTS ME)

Name	ECTS	Term	Type
Topics of Social Data Science	4 ECTS	Fall	M
Network Science	4 ECTS	Fall	M
Digital Data Collection Methods: Opportunities and Risks	4 ECTS	Winter	M
Data Visualization	4 ECTS	Winter	M
Ethics of Big Data	4 ECTS	Fall	M
Agent-Based Modelling	4 ECTS	Winter	ME
Dynamical Systems on Networks	4 ECTS	Winter	ME
Social Dynamics	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Finding Patterns with Regressions	4 ECTS	Fall	ME

Specialization Module

Specialization module mandatory courses:

Name	ECTS	Term	Type
Debate and Contradictions in Social Data Science	4 ECTS	Winter	M
Social Networks 1	4 ECTS	Fall	M

Specialization in Economics sample elective course list:

Name	ECTS	Term	Type
Microeconomics for Economic Policy *	8 ECTS	Fall	ME
Experimental Economics: Documenting Irrational Choices and Preferences	4 ECTS	Fall	ME
Economic and Social Networks	4 ECTS	Fall	ME
Energy Cultures and Transitions	4 ECTS	Winter	ME
Fintech in Depth	4 ECTS	Winter	ME
Econometrics 2	8 ECTS	Winter	ME

Designing markets that work	4 ECTS	Fall	ME
Finance for Managers	4 ECTS	Winter	ME
Behavioural Economics and Beliefs	4 ECTS	Winter	ME
Machine Learning for Natural Language Processing 1	4 ECTS	Winter	ME
Machine Learning for Natural Language Processing 2	4 ECTS	Winter	ME

Specialization in Environment Science sample elective course list

Name	ECTS	Term	Type
Humans and Biosphere *	2 ECTS	Fall	ME
Non-human Biosphere *	2 ECTS	Fall	ME
Introduction to Geospatial Analysis	6 ECTS	Winter	ME
Introduction to Geospatial Data Visualization I	2 ECTS	Fall	ME
Introduction to Geospatial Data Visualization II	2 ECTS	Fall	ME
Energy Cultures and Transitions	4 ECTS	Winter	ME
Environmental Practicum	4 ECTS	Winter	ME
Survey Research Methods	4 ECTS	Winter	ME

Specialization in Political Science and Policy sample elective course list:

Name	ECTS	Term	Type
Foundations of Political Philosophy *	4 ECTS	Fall	ME
Economic Analysis for Public Policy	8 ECTS	Fall	ME
Big Data for Public Policy	4 ECTS	Winter	ME
Impact Evaluation	4 ECTS	Winter	ME
Advanced Impact Evaluation	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Domestic Politics in the Global Economy	4 ECTS	Winter	ME
Media Systems and Democracy: Social Media	8 ECTS	Winter	ME
Introduction to Political Communication	4 ECTS	Winter	ME
Introduction to Causal inference	4 ECTS	Fall	ME

Specialization in Applied Social Data Science sample elective course list:

Name	ECTS	Term	Type
Conceptions of Social Dynamics *	4 ECTS	Pre-term	ME
Social Networks 2	4 ECTS	Winter	ME
Introduction to Geospatial Analysis	6 ECTS	Winter	ME
Introduction to Geospatial Data Visualization I	4 ECTS	Fall	ME
Introduction to Geospatial Data Visualization II	4 ECTS	Fall	ME
Big Data for Public Policy	4 ECTS	Winter	ME
Fintech in Depth	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Machine Learning for Natural Language Processing 1	4 ECTS	Winter	ME

Machine Learning for Natural Language Processing 2	4 ECTS	Winter	ME
Entrepreneurship and Innovation	4 ECTS	Winter	ME

Bootcamp module (0-16 ECTS FE)

Name	ECTS	Term	Type
Conceptions of Social Dynamics	0 (4) ECTS	Pre-term	FE (ME)
Introduction to Computer Science	0 ECTS	Pre-term	FE
Mathematical methods	0 ECTS	Pre-term	FE

Academic Writing Module (4 ECTS M)

Name	ECTS	Term	Type
Academic Writing	4 ECTS	Winter	M

Seminar Module (8 ECTS ME)

Free Elective Module (8 ECTS FE)

Project Module (28 ECTS M)

1-year SDS MS program course list

<i>Modules</i>	<i>Required Credits</i>	<i>Courses</i>	<i>Term</i>	<i>Type M/ME/FE</i>	<i>ECTS</i>
Fundamental Methods of Data Science	4 ECTS	Course from the mandatory elective course list of the module	Winter	ME	4
Specialization	12 ECTS	Course from the list of specialization tracks	Fall	ME	4
		Course from the list of specialization tracks	Fall	ME	4
		Course from the list of specialization tracks	Winter	ME	4
Advanced Methods and Concepts	16 ECTS	Topics of SDS	Fall	M	4
		Ethics of Big Data	Fall	M	4
		Course from the mandatory elective course list of the module	Fall	ME	4
		Course from the mandatory elective course list of the module	Winter	ME	4
Optional Courses	4 ECTS	Free elective MS level course from any programs at CEU PU.	Fall	FE	4
Academic writing	4 ECTS	Academic Writing	Winter	M	4
Seminar	4 ECTS	Thesis seminar course	Winter	M	4
Projects	16 ECTS	Capstone project 1	Winter	M	4
		Capstone project 2	Spring	M	12
Fall Term Credit Total: 24 ECTS Winter Term Credit Total: 24 ECTS Spring Term Credit Total: 12 ECTS Year 2 Credit Total: 60 ECTS					

Modules

Fundamental Methods of Data Science Module (4 ECTS ME)

Name	ECTS	Term	Type
Applied Statistics	4 ECTS	Fall	M
Data Analysis in Python	4 ECTS	Fall	M
Introduction to Machine Learning	4 ECTS	Fall	M
Social Data Mining	4 ECTS	Winter	M
Advanced Machine Learning	4 ECTS	Winter	ME
Mathematics for Advanced Methods and Concepts	4 ECTS	Winter	ME
Different Shapes of Data	4 ECTS	Fall	ME
Bayesian Data Analysis	4 ECTS	Winter	ME

Advanced Methods and Concepts Module (8 ECTS M and 8 ECTS ME)

Name	ECTS	Term	Type
Topics of Social Data Science	4 ECTS	Fall	M
Ethics of Big Data	4 ECTS	Fall	M
Digital Data Collection Methods: Opportunities and Risks	4 ECTS	Winter	M
Data Visualization	4 ECTS	Winter	M
Network Science	4 ECTS	Fall	M
Agent-Based Modelling	4 ECTS	Winter	ME
Dynamical Systems on Networks	4 ECTS	Winter	ME
Social Dynamics	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Finding Patterns with Regressions	4 ECTS	Fall	ME

Specialization Module

Specialization module mandatory courses:

Specialization in Economics sample elective course list:

Name	ECTS	Term	Type
Microeconomics for Economic Policy *	8 ECTS	Fall	ME
Experimental Economics: Documenting Irrational Choices and Preferences	4 ECTS	Fall	ME
Economic and Social Networks	4 ECTS	Fall	ME
Energy Cultures and Transitions	4 ECTS	Winter	ME
Fintech in Depth	4 ECTS	Winter	ME
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Designing markets that work	4 ECTS	Fall	ME
Finance for Managers	4 ECTS	Winter	ME
Behavioural Economics and Beliefs	4 ECTS	Winter	ME

Machine Learning for Natural Language Processing 1	4 ECTS	Winter	ME
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Introduction to Geospatial Data Visualization II	2 ECTS	Fall	ME
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Environmental Practicum	4 ECTS	Winter	ME
Survey Research Methods	4 ECTS	Winter	ME

Specialization in Political Science and Policy sample elective course list:

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Economic Analysis for Public Policy	8 ECTS	Fall	ME
Big Data for Public Policy	4 ECTS	Winter	ME
Impact Evaluation	4 ECTS	Winter	ME
Advanced Impact Evaluation	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Domestic Politics in the Global Economy	4 ECTS	Winter	ME
Media Systems and Democracy: Social Media	8 ECTS	Winter	ME
Introduction to Political Communication	4 ECTS	Winter	ME
Introduction to Causal inference	4 ECTS	Fall	ME

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Introduction to Geospatial Data Visualization I	4 ECTS	Fall	ME
Introduction to Geospatial Data Visualization II	4 ECTS	Fall	ME
Big Data for Public Policy	4 ECTS	Winter	ME
Fintech in Depth	4 ECTS	Winter	ME
Data and Development	4 ECTS	Winter	ME
Machine Learning for Natural Language Processing 1	4 ECTS	Winter	ME
Machine Learning for Natural Language Processing 2	4 ECTS	Winter	ME
Entrepreneurship and Innovation	4 ECTS	Winter	ME

Academic Writing Module (4 ECTS M)

Name	ECTS	Term	Type
Academic Writing	4 ECTS	Winter	M

Seminar Module (8 ECTS ME)

Free Elective Module (8 ECTS FE)

Project Module (28 ECTS M)

Contact:

Pr. Márton Karsai, CEU, Department of Network and Data Science
karsaim@ceu.edu

-- We keep the rights for future changes of the listed courses. --