

MSc Social and Economic Data Science

Course Catalogue Winter Semester 2024/25

Version: 23 October 2024

Website: polver.uni.kn/seds

Postal address

University of Konstanz
Department of Politics and Public Administration
78457 Konstanz
Germany

Course Advice for Students of the Master's Program in Social and Economic Data Science

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Office Hours during lecture period

Tuesday, 11-12 am, online via [zoom](#)
Wednesday, 1.30-3 pm, on-site in D328 with appointment

Student Course Guidance

Tessa Bartels
seds.msc@uni-konstanz.de

Dates of the winter semester 2024/25

Start of term	01.10.2024
End of term	31.03.2025
Registration for lectures and seminars for winter semester (differ between departments)	See “basic data” of respective courses on ZEuS or departments’ websites
Beginning of lectures	21.10.2024
End of lectures	08.02.2025
Lecture-free period around Christmas	21.12.2024 – 06.01.2025
Examination period	February 2025
Resit examination period	March/April 2025
Registration periods for exams and resit exams (differ between departments)	Click here

Further details regarding **semester dates** are available on the following [website](#).
Please note that the only fully reliable information on the **exam dates** can be found on ZEuS.

Important information:

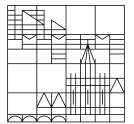
The Master's Programme in Social and Economic Data Science is an interdisciplinary program where you attend classes in various departments. Therefore, please always double check the information regarding coursework and exams via [ZEuS](#).

Registration for courses:

Please note, that students must register via [ZEuS](#) for the courses they want to attend during the semester. Here you can find a [guideline](#) how to register for the courses. Please take care of the different registration deadlines of the participating departments. You will find further details on ZEuS or on the respective departments’ websites.

Registration for exams:

Please, also register for exams via [ZEuS](#). An explanation how to generate your TANs in ZEuS, may be found in the [ZEuS-Wiki](#). Should you have any problems registering for exams, please contact the ZEuS support team: zeus.support@uni-konstanz.de.



Preparatory courses for new master's students (free of charge)

Offered in October 2024.

Department of Politics and Public Administration

Python Crash Course / Introduction to Programming with Python

T. Kim

Can be credited in the module "Programming and Scripting" (p. 10)

14/10/2024 – 18/10/2024

8:00 - 18:30 in room C358 and D401.

See: [ZEuS](#)

Prep Course: Research Methods and Statistics

M. Herrmann

07/10/2024 – 18/10/2024

Mon, Wed, Fri, 10.00 to 13:15 in room C230

See: [ZEuS](#)

Department of Economics

Prep Course: Econometrics

16/10/2024, 2.00 – 3.30 PM

17/10/2024 - 18/10/2024, 10.00 – 12.00 AM and 1.00 - 3.30 PM

Prep Course: Quantitative Methods in Economics

11/10/24, 10.00 – 12.00 AM and 2.00 - 5.00 PM

12/10/24, 10.00 – 12.00 AM

14/10/24, 10.00 – 12.00 AM and 2.00 - 5.00 PM

15/10/24, 10.00 – 12.00 AM and 2.00 - 5.00 PM

16/10/24, 10.00 AM – 1.00 PM

Department of Computer Sciences

Kompaktkurs Mathematik 1 (Duration: 5 days, German only)

S. Kosub

07/10/24, 14:30 – 16.45 PM, R513

08/10/24 – 11/10/24, 9:00 AM – 16:45 PM, M629/L602

See: [ZEuS](#)

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1. Introduction to Computational Methods for the Social Sciences

Introduction to Computing for the Social Sciences, 9cr

D. Garcia

Wed, 10:00 – 13:15 PM, C358

See: [ZEuS](#)

Tutorial (2 hours), 2 groups

Group 1	Wed	15:15 PM – 16:45 PM	Weekly	C424
Group 2	Thu	15:15 PM – 16:45 PM	Weekly	D432

Please note: In preparation for “Introduction to Computing for the Social Sciences” we advise all new MSc SEDS Students to take the **Python Crash Course** in October.

2. Foundations of Data Science

FOCUS AREA: Computer Sciences

Konzepte der Informatik, 6cr

B. Pampel

Mon, 11:45 AM - 13:15 PM, R513

Tue, 10:00 AM - 11:30 AM, R513

See: [ZEuS](#)

Tutorial (2 hours), 5 groups

Group 1	Thu	15:15 PM – 16:45 PM	Weekly	C424
Group 2	Thu	15:15 PM – 16:45 PM	Weekly	D433
Group 3	Thu	17:00 PM – 18:30 PM	Weekly	D433
Group 4	Fri	08:15 AM - 09:45 AM	Weekly	D433
Group 5	Fri	13:30 PM – 15:00 AM	Weekly	D433

Only in combination with:

Programmierkurs I (Imperative Sprache), 6cr

M. Grossniklaus

Mo, 10:00 PM – 11:30 PM, R513

See: [ZEuS](#) (registration via ILIAS mandatory)

Tutorials (2 hours), 6 groups

Group 1	Thu	11:45 AM – 13:15 PM	Weekly	P602
Group 2	Thu	13:30 PM – 15:00 PM	Weekly	M630
Group 3	Thu	13:30 PM – 15:00 PM	Weekly	M628
Group 4	Thu	17:00 PM – 18:30 PM	Weekly	P602
Group 5	Fri	10:00 PM – 11:30 PM	Weekly	M627
Group 6	Fri	10:00 PM – 11:30 PM	Weekly	M628

Data Mining: Basic Concepts, 6cr

D. Keim/M.Fischer

Mo, 11:45 AM – 13:15 PM, M629

See: [ZEuS](#)

Tutorial (2hours), 3 groups

Group 1	Wed	11:45 AM – 13:15 PM	Weekly	ZT1202
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	ZT1202
Group 3	Wed	15:15 PM – 16:45 PM	Weekly	ZT1202

Software Engineering , 6cr

S. Leue

Tue, 10:00 AM – 11:30 PM, R511

Wed, 11:45 AM – 13:15 PM, R511

See: [ZEuS](#)

FOCUS AREA: Mathematics

Diskrete Mathematik und Logik, 9cr

S. Kosub

Wed, 10:00 AM – 11:30 AM, R513

Thu, 10:00 AM – 11:30 AM, R513

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Wed	11:45 AM – 13:15 PM	Weekly	D201
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	D433
Group 3	Wed	15:15 PM – 16:45 PM	Weekly	D433
Group 4	Wed	17:00 PM – 18:30 PM	Weekly	D433
Group 5	Thu	11:45 AM – 13:15 PM	Weekly	D432
Group 6	Thu	13:30 PM – 15:00 PM	Weekly	D433

Lineare Algebra I, 6+3cr
Mon, 10:00 AM – 11:30 AM, room tba
Thu, 10:00 AM – 11:30 AM, room tba
 See: [ZEuS](#)
 Tutorial (2 hours), 1 group

C. Scheiderer

Group 1	tba	tba	Weekly	tba
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Mathematik für Wirtschaftswissenschaftler*innen I, 9cr
Thu, 10:00 AM – 11:30 AM, R711
Fri, 10:00 AM – 11:30 AM, R711
 See: [ZEuS](#)
 Tutorial (2 hours), 8 groups

J. Schropp

Group 1	Mon	11:45 AM – 13:15 PM	Weekly	C358
Group 2	Mon	17:00 PM – 18:30 PM	Weekly	P1138
Group 3	Tue	08:15 AM – 09:45 AM	Weekly	K503
Group 4	Wed	11:45 AM – 13:15 PM	Weekly	K503
Group 5	Wed	13:30 PM – 15:00 PM	Weekly	K503
Group 6	Thu	08:15 AM – 09:45 AM	Weekly	C358
Group 7	Thu	13:30 PM – 15:00 PM	Weekly	G421
Group 8	Fri	08:15 AM – 09:45 AM	Weekly	C358

Datenmathematik, 9cr
Tue, 15:15 PM – 16:45 PM, R513
Thu, 13:30 PM – 15:00 PM, R513
 See: [ZEuS](#)
 Tutorial (2 hours), 4 groups

S. Kosub

Group 1	Wed	10:00 AM – 11:30 AM	Weekly	D301
Group 2	Thu	10:00 AM – 11:30 AM	Weekly	D301
Group 3	Thu	11:45 AM – 13:15 PM	Weekly	M628
Group 4	Thu	15:15 PM – 16:45 PM	Weekly	ML630

Mathematics for Social Scientists, 7cr
Tue, 10:00 AM – 11:30 AM, G227a
Thu, 10:00 AM – 11:30 AM, G227a
 See: [ZEuS](#)

T.Shafie

Introduction to Probability Theory, 7cr
Tue, 08:15 AM – 09:45 AM, E402
 See: [ZEuS](#)

S.Shikano

FOCUS AREA: Social-Scientific Methods

Introduction to Survey Methodology, 6cr lecture + 3cr tut
Thu, 11:45 AM – 13:15 PM, M627

P. Selb

See: [ZEuS](#)

Tutorial (2 hours), 3 groups

Group 1	tba	tba	Weekly	
Group 2	tba	tba	Weekly	
Group 3	tba	tba	Weekly	

Research Design I: Research Design and Causal Inference, 9cr
Tue, 11:45 AM – 13:15 PM, weekly, R611

P. Selb

See: [ZEuS](#)

Empirical Research Methods, 9cr
Tue, 15:15 PM – 16:45 PM, R712

S. Shikano

Wed, 10:00 AM – 11:30 AM, R711

See: [ZEuS](#)

Empirie: Quantitative Methoden, 6cr
Tue, 10:00 AM – 11:30 AM, Sonnenbühl 306 (SoBü306)

T. Hinz

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Wed	08:15 AM – 09:45 AM	Weekly	E403
Group 2	Wed	10:00 AM – 11:30 AM	Weekly	G305
Group 3	Wed	13:30 PM – 15:00 PM	Weekly	G306
Group 4	Wed	13:30 PM – 15:00 PM	Weekly	G305
Group 5	Wed	15:15 PM – 16:45 PM	Weekly	D201

Methoden & Geschichte der Psychologie, 5cr
Mon, 15:15 PM – 16:45 PM, R711

U. Reips

Mon, 17:00 PM – 18:30 PM, R711

See: [ZEuS](#)

Econometrics, 8cr
Wed, 08:15 AM – 11:30 AM, R712

R. Brüggemann

See: [ZEuS](#)

Tutorial (2 hours), 3 groups

Group 1	Wed	17:00 PM – 18:30 PM	Weekly	L602
Group 2	Fri	08:15 AM – 09:45 AM	Weekly	R512
Group 3	Fir	11:45 AM – 13:15 PM	Weekly	A704

FOCUS AREA: Statistics

Statistics 1 (PSY), 5cr

Y. Shevchenko/A. Overlander

Wed, 13:30 PM – 15:00 PM, R711 (lecture)

Wed, 15:15 PM – 16:45 PM, R513 (workshop)

See: [ZEuS](#)

Statistics 1 (ECO), 6cr

R. Brüggemann

Mon, 13:30 PM – 15:00 PM, R611

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Mon	11:45 AM – 13:15 PM	Weekly	G530
Group 2	Tue	08:15 AM – 09:45 AM	Weekly	C358
Group 3	Tue	13:30 PM – 15:00 PM	Weekly	D432
Group 4	Wed	11:45 AM – 13:15 PM	Weekly	G530
Group 5	Thu	11:45 AM – 13:15 PM	Weekly	E402
Group 6	Thu	13:30 PM – 15:00 PM	Weekly	C358
Group 7	Thu	15:15 PM – 16:45 PM	Weekly	K503
Group 8	Fri	11:45 AM – 13:15 PM	Weekly	C358

Datenmathematik, 9cr

S. Kosub

Tue, 15:15 PM – 16:45 PM, R513

Thu, 13:30 PM – 15:00 PM, R513

See: [ZEuS](#)

Tutorial (2 hours), 4 groups

Group 1	Wed	10:00 AM – 11:30 AM	Weekly	D301
Group 2	Thu	10:00 AM – 11:30 AM	Weekly	D301
Group 3	Thu	11:45 AM – 13:15 PM	Weekly	M628
Group 4	Thu	15:15 PM – 16:45 PM	Weekly	ML630

3. Advanced Methods: Computer Science

Konzepte der Programmierung, 6cr

M. Grossniklaus

Mon, 13:30 PM – 15:00 PM, L602

Tue, 13:30 PM – 15:00 PM, R512

See: [ZEuS](#)

Tutorial (2 hours), 4 groups

Group 1	Tue	17:00 PM – 18:30 PM	Weekly	P712
Group 2	Wed	10:00 AM – 11:30 AM	Weekly	D247
Group 3	Wed	13:30 PM – 15:00 PM	Weekly	M630
Group 4	Wed	15:15 PM – 16:45 PM	Weekly	M630

Only in combination with:

Programmierkurs III, 3cr

E. D'Oswaldo

Mon, 15:15 PM – 16:45 PM, L602

See: [ZEuS](#)

Optimization for data science, 6cr

T. Sutter

Wed, 11:45 AM – 13:15 PM, P603

See: [ZEuS](#)

Exercise:

Group 1	Thu	15:15 PM – 16:45 PM	Weekly	P602
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Data Visualization: Advanced Topics, 6cr

M. Fischer

Tue, 10:00 AM – 11:30 AM, ZT1202

See: [ZEuS](#)

Group 1	Fri	13:30 PM – 15:00 PM	Weekly	ZT1202
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Data Mining: Basic Concepts, 6cr

D. Keim/M. Fischer

Mon, 11:45 AM – 13:15 PM, M629

See: [ZEuS](#)

Tutorial (2hours), 3 groups, tba

Word Representations and Language Models, 6cr

A. Spitz

Mon, 10:00 AM – 11:30 AM, ZT702

Thu, 11:45 AM – 13:15 PM, ZT702

See: [ZEuS](#)

Geographic Information Systems, 6cr

M. Fischer

Tue, 13:30 PM – 15:00 PM, ZT1202

See: [ZEuS](#)

Group 1	Thu	17:00 PM – 18:30 PM	Weekly	ZT1202
Group 2	Fri	11:45 AM - 13:15 PM	Weekly	ZT1202

Algorithm Engineering, 6cr
Tue, 10:00 AM – 11:30 AM, M628
 See: [ZEuS](#)

S. Storandt

Group 1	Wed	11:45 AM - 13:15 PM	Weekly	D522
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	ML630

Applications for Powerwall and Virtual Reality Environments, 6cr
Wed, 17:00 PM – 18:30 PM, ZT1204
 See: [ZEuS](#)

M. Fischer

Randomized Algorithms, 6cr
Digital self-study (semester course)
 See: [ZEuS](#)

S. Storandt

Seminar Data Analysis and Visualization, 3cr
Tue, 15:15 PM – 16:45 PM, ZT1202
 See: [ZEuS](#)

M. Fischer

Network Visualization, 6cr.
Tue, 11:45 AM – 13:15 PM, P602
 See: [ZEuS](#)

K. Klein

Group 1	Wed	15:15 PM – 16:45 PM	Weekly	M628
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4. Advanced Methods: Statistics

Advanced Econometrics, 10cr
Tue, 08:15 AM - 09:45 AM, G530
Wed, 08:15 AM - 09:45 AM, G530
 See: [ZEuS](#)

C. Wegener

Group 1	Tue	11:45 AM - 13:15 PM	Weekly	M628
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	G530

Advanced Time Series Analysis, 8cr
Mon, 10:00 AM - 11:30 AM, F429
Fri, 10:00 AM - 11:30 AM, F429
 See: [ZEuS](#)

R. Brüggemann

Einführung in die Bayes-Statistik, 4cr
Wed, 11:45 AM – 13:15 PM, D247
 See: [ZEuS](#)

D. Jendryczko

Datenmathematik, 9cr
 See Focus Area: Mathematics

T. Sutter

Statistical Learning, 9 cr T. Shafie
Tue, 11:45 AM – 13:15 PM, J213
Wed, 10:00 AM – 11:30 AM, J213
See: [ZEuS](#)

Introduction to causal inference, 8cr P. Schneider
Wed, 13:30 PM – 16:45 PM, F424
See: [ZEuS](#)

Mathematics for Social Scientist, 7cr T. Shafie
Tue, 10:00 AM – 11:30 AM, G227a
Thu, 10:00 AM – 11:30 AM, G227a
See: [ZEuS](#)

Introduction to Probability Theory, 7cr S. Shikano
Tue, 08:15 AM – 09:45 AM, E402
See: [ZEuS](#)

5. Programming and Scripting

Python Crash Course / Introduction to Programming with Python, 3cr T. Kim
14/10/2024 – 18/10/2024
8:00 - 18:30 in room C358 and D401
See: [ZEuS](#)
Please note: This course is recommended as preparation for “Introduction to Computing for the Social Sciences”.

Data Analysis with R (in English), 7cr M. Herrmann
Thu, 10:00 AM – 11:30 AM, BS217
See: [ZEuS](#)

Data Analysis mit R (in German), 7cr M. Herrmann
Thu, 11:45 AM - 1:15 PM, BS217
See: [ZEuS](#)

Programmierkurs I (Imperative Sprache), 6cr M. Grossniklaus
See Focus Area: Computer Sciences

Programmierkurs III, 3cr E. D’Oualdo
See Advanced Methods: Computer Sciences

R Basics Bootcamp (Blockcourse), 4cr E. Unternährer
Single date, Fri, 15/11/2024, 13:30 PM – 18:00 PM, ZfP 014 Seminarraum 1 Haus 22 EG
Single date, Sat, 16/11/2024, 09:00 AM – 18:00 PM, ZfP 014 Seminarraum 1 Haus 22 EG
Single date, Sun, 17/11/2024, 09:00 AM – 18:00 PM, ZfP 014 Seminarraum 1 Haus 22 EG
See: [ZEuS](#)

Tutorial: Designing and implementing online survey experiments, 3 cr S. Shikano
Wed, 11:45 PM – 13:15 PM, D431
See: ZEuS

6. Social Science Applications

Designing and implementing online survey experiments,

7cr seminar + 3cr tut

Tue, 13:30 PM – 15:00 PM, D522

See: [ZEuS](#)

Tutorial: Wed, 11:45 PM – 13:15 PM, D431

See: [ZEuS](#)

Einführung in die Bayes-Statistik, 4cr

Wed, 11:45 AM – 13:15 PM, D247

See: [ZEuS](#)

Seminar machine learning and optimization, 3cr

Mon, 15:15 PM – 16:45 PM, P602

See: [ZEuS](#)

Statistical Learning, 9 cr

Tue, 11:45 AM – 13:15 PM, J213

Wed, 10:00 AM – 11:30 AM, J213

See: [ZEuS](#)

Wikipedia Data in Computational Social Science (Block Course), 6cr

Mon, 21/10 – 16/12/2024,

10:00 AM – 13:15 PM, D433

See: [ZEuS](#)

Network Science of Socio-Economic Systems, 6cr

Mon, 13:30 PM – 15:00 PM, G308

Tue, 15:15 PM – 16:45 PM, G358

See: [ZEuS](#)

S. Shikano

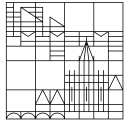
D. Jendryczko

T. Sutter

T. Shafie

T. Kim

G. de Marzo



Timetable Foundation of Data Science (lectures) Winter Semester 2024/25 (subject to alterations)

Focus Area: Mathematics; Focus Area: Computer Science; Focus Area: Social-Scientific Methods; Focus Area: Statistics

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:15 – 9:45			- Econometrics		
10:00 – 11:30	- Programmierkurs I - Lineare Algebra I	- Konzepte der Informatik - Software Engineering - Mathematics for Social Scientists - Introduction to Probability Theory - Empirie: Quantitative Methoden	- Introduction to Computing for the Social Sciences - Diskrete Mathematik und Logik - Empirical Research Methods - Econometrics	- Lineare Algebra I - Mathematik für Wirtschaftswissenschaftler*innen I - Diskrete Mathematik und Logik - Mathematics for Social Scientists	- Mathematik für Wirtschaftswissenschaftler*innen I
11:45 – 13:15	- Konzepte der Informatik - Data Mining: Basic Concepts	- Research Design I: Research Design and Causal Inference	- Introduction to Computing for the Social Sciences - Software Engineering	- Introduction to Survey Methodology	
13:30 – 15:00	- Statistics 1 (ECO)		- Statistics 1 (PSY)	- Datenmathematik	
15:15 – 16:45	- Methoden & Geschichte der Psychologie	- Datenmathematik - Empirical Research Methods	- Tutorial: Introduction to Computing for the Social Sciences - Statistics 1 (PSY)	- Tutorial: Introduction to Computing for the Social Sciences	
17:00 – 18:30	- Methoden & Geschichte der Psychologie				