

# MSc Social and Economic Data Science

## Course Catalogue Winter Semester 2023/24

Version: 16 October 2023

Website: [polver.uni.kn/seds](https://polver.uni.kn/seds)

### **Postal address**

University of Konstanz  
Department of Politics and Public Administration  
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### **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**

Zoé Wolter  
[seds.msc@uni-konstanz.de](mailto:seds.msc@uni-konstanz.de)

## Dates of the winter semester 2023/24

Start of term	01.10.2023
End of term	31.03.2024
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	23.10.2023
End of lectures	10.02.2024
Lecture-free period around Christmas	23.12.2023 – 07.01.2024
Examination period	February 2023
Resit examination period	March/April 2023
Registration periods for exams and resit exams (differ between departments)	Click <a href="#">here</a>

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:

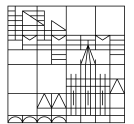
The Master's Programme in Social and Economic Data Science is an interdisciplinary program where you attend classes in various departments. Therefore, please always double check the information regarding coursework and exams via [ZEuS](#).

#### **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](mailto:zeus.support@uni-konstanz.de).



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

Offered in October 2023.

### Department of Politics and Public Administration

#### **Python Crash Course / Introduction to Programming with Python**

Indira Senn et al

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

16/10/2023 – 20/10/2023 (all-day) in room C358 and D406.

See: [ZEuS](#)

#### **Prep Course: Research Methods and Statistics**

M. Herrmann

09/10/2023 – 20/10/2023 (Mon, Wed, Fri, 10.00 to 13:15 in room L602)

See: [ZEuS](#)

### Department of Economics

#### **Prep Course: Econometrics**

N. Zubanov

12/10/2023 – 13/10/2023, 2.00 – 5.30 PM, R512

16/10/2023 – 18/10/2023, 2.00 – 5.30 PM, R512

20/10/2023, 11.00 AM – 6.00 PM, Y311

#### **Prep Course: Quantitative Methods in Economics**

B. Kasberger

11/10/23 – 13/10/23 and 16/10/2023 – 18/10/2023, 10.00 AM – 1.00 PM, M627

### Department of Computer Sciences

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

S. Kosub

09/10/23, 2:30 – 4.45 PM, R513

10/10/23 – 13/10/23, 9.00 AM – 4.45 PM, R513

See: [ZEuS](#)

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## 1. Introduction to Computational Methods for the Social Sciences

Introduction to Computation for the Social Sciences, 9cr

D. Garcia

**Mo, 13:30 – 16:00 PM, F425**

See: [ZEuS](#)

Tutorial (2 hours), 2 groups

Group 1	Wed	13:30 PM – 15:00 PM	Weekly	E402
Group 2	Thu	15:15 PM – 16:45 PM	Weekly	G307

Please note: In preparation for “Introduction to Computation 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, R711**

**Tue, 10:00 AM - 11:30 AM, R711**

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Thu	15:15 PM – 16:45 PM	Weekly	P602
Group 2	Thu	15:15 PM – 16:45 PM	Weekly	D433
Group 3	Fri	10:00 AM - 11:30 AM	Weekly	D433
Group 4	Fri	10:00 AM - 11:30 AM	Weekly	D201

Group 5	Fri	13:30 PM – 15:00 PM	Weekly	M630
Group 6	Fri	13:30 PM – 15:00 PM	Weekly	M628

Only in combination with:

**Programmierkurs I (Imperative Sprache), 6cr**

M. Grossniklaus / S. Storandt

**Tue, 13:30 PM – 15:00 PM, R711**

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

Tutorials (2 hours), 6 groups

Group 1	Thu	11:45 AM – 13:15 PM	Weekly	M628
Group 2	Thu	11:45 AM – 13:15 PM	Weekly	F429
Group 3	Thu	13:30 PM – 15:00 PM	Weekly	M630
Group 4	Thu	13:30 PM – 15:00 PM	Weekly	ML630
Group 5	Thu	17:00 PM – 18:30 PM	Weekly	ML630
Group 6	Fri	08:15 AM – 09:45 AM	Weekly	P602

**Data Mining: Basic Concepts, 6cr**

D. Keim

**Thu, 11:45 AM – 13:15 PM, G201**

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

## FOCUS AREA: Mathematics

**Diskrete Mathematik und Logik, 9cr**

B. Goldlücke

**Mon, 10:45 AM – 11:30 AM, M629**

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Wed	10:00 AM – 11:30 AM	Weekly	D433
Group 2	Wed	11:45 AM – 13:15 PM	Weekly	E402
Group 3	Wed	13:30 PM – 15:00 PM	Weekly	ML630
Group 4	Wed	15:15 PM – 16:45 PM	Weekly	ML630
Group 5	Thu	10:00 AM – 11:30 AM	Weekly	E402
Group 6	Thu	11:45 AM – 13:15 PM	Weekly	C424

**Lineare Algebra I**, 6+3cr  
**Mon, 10:00 AM – 11:30 AM, R712**  
**Thu, 10:00 AM – 11:30 AM, R712**  
 See: [ZEuS](#)  
 Tutorial (2 hours), 1 group

S. Kuhlmann

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

J. Schropp

Group 1	Mon	10:00 AM – 11:30 AM	Weekly	K503
Group 2	Mon	17:00 PM – 18:30 PM	Weekly	G309
Group 3	Tue	10:00 AM – 11:30 AM	Weekly	K503
Group 4	Tue	11:45 AM – 13:15 PM	Weekly	K503
Group 5	Wed	11:45 AM – 13:15 PM	Weekly	K503
Group 6	Wed	13:30 PM – 15:00 PM	Weekly	R511
Group 7	Thu	08:15 AM – 09:45 AM	Weekly	K503
Group 8	Fri	08:15 AM – 09:45 AM	Weekly	M627
Group 9	Fri	10:00 AM – 11:30 AM	Weekly	ZT1202

**Datenmathematik**, 9cr  
**Tue, 15:15 PM – 16:45 PM, R512**  
**Thu, 13:30 PM – 15:00 PM, R513**  
 See: [ZEuS](#)  
 Tutorial (2 hours), 4 groups

T. Sutter

Group 1	Wed	13:30 PM – 15:00 PM	Weekly	L602
Group 2	Wed	11:45 AM – 13:15 PM	Weekly	F429
Group 3	Wed	15:15 PM – 16:45 PM	Weekly	M630
Group 4	Thu	10:00 AM – 11:30 AM	Weekly	E403

**Mathematics for Political Science**, 7cr  
**Mon, 17:00 PM – 18:30 PM, C358**  
 See: [ZEuS](#)

J. Vogler

## FOCUS AREA: Social-Scientific Methods

**Introduction to Survey Methodology**, 6cr lecture + 3cr tut

P. Selb

**Thu, 11:45 AM – 13:15 PM, G300**

See: [ZEuS](#)

Tutorial (2 hours), 3 groups

Group 1	Tue	08:15 AM – 09:45 AM	Weekly	G421
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	Z1003
Group 3	Wed	17:00 PM – 18:30 PM	Weekly	F424

**Research Design I: Research Design and Causal Inference**, 9cr

P. Selb

**Tue, 11:45 AM – 13:15 PM, weekly, D301**

**Tue, 11:45 AM – 13:15 PM, weekly, G421**

**Tue, 11:45 AM – 13:15 PM, weekly, E402**

**Tue, 11:45 AM – 13:15 PM, weekly, D432**

See: [ZEuS](#)

**Empirical Research Methods**, 9cr

S. Shikano

**Tue, 11:45 AM – 13:15 PM, Konzil1**

**Tue, 13:30 PM – 15:00 PM, Konzil1**

See: [ZEuS](#)

**Empirie: Quantitative Methoden**, 6cr

B. Combet

**Tue, 11:45 PM – 13:15 PM, R513**

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

Group 1	Wed	10:00 AM – 11:30 AM	Weekly	D301
Group 2	Wed	13:30 PM – 15:00 PM	Weekly	F427
Group 3	Wed	17:00 PM – 18:30 PM	Weekly	H304
Group 4	Thu	10:00 AM – 11:30 AM	Weekly	G227a
Group 5	Thu	11:45 AM – 13:15 PM	Weekly	G421
Group 6	Thu	17:00 PM – 18:30 PM	Weekly	H304

**Methoden & Geschichte der Psychologie**, 5cr

U. Reips

**Mon, 15:15 PM – 16:45 PM, R711**

**Mon, 17:00 PM – 18:30 PM, R711**

See: [ZEuS](#)

Tutorial (2 hours), 6 groups

## FOCUS AREA: Statistics

**Statistics 1 (PSY)**, 5cr

Y. Shevchenko / M. Miccoli

**Tue, 11:45 AM – 13:15 PM, R712**

**Wed, 13:30 PM – 15:00 PM, R712**

See: [ZEuS](#)

**Statistics 1 (ECO), 6cr**  
**Mon, 13:30 PM – 15:00 PM, R513**  
 See: [ZEuS](#)  
 Tutorial (2 hours), 6 groups

R. Brüggemann

Group 1	Tue	08:15 AM – 09:45 AM	Weekly	R511
Group 2	Tue	10:00 AM – 11:30 AM	Weekly	M627
Group 3	Wed	08:15 AM – 09:45 AM	Weekly	G227a
Group 4	Wed	11:45 AM – 13:15 PM	Weekly	L602
Group 5	Thu	13:30 PM – 15:00 PM	Weekly	R512
Group 6	Thu	17:00 PM – 18:30 PM	Weekly	G227
Group 7	Fri	08:15 AM – 09:45 AM	Weekly	G530
Group 8	Fri	11:45 AM – 13:15 PM	Weekly	G530

**Datenmathematik, 9cr**  
 See Focus Area: Mathematics

T. Sutter

### **3. Advanced Methods: Computer Science**

**Konzepte der Programmierung, 6cr**  
**Mon, 17:00 PM – 18:30 PM, R513**  
**Tue, 17:00 PM – 18:30 PM, R611**  
 See: [ZEuS](#)  
 Tutorial (2 hours), 4 groups

M. Grossniklaus

Group 1	Tue	10:00 AM – 11:30 AM	Weekly	P602
Group 2	Tue	11:45 AM – 13:15 PM	Weekly	M628
Group 3	Wed	10:00 AM – 11:30 AM	Weekly	M627
Group 4	Wed	11:45 AM – 13:15 PM	Weekly	D201

*Only in combination with:*

**Programmierkurs III, 3cr**  
**Mon, 15:15 PM – 16:45 PM, R512**  
 See: [ZEuS](#)

G. Diatzko

**Data Visualization: Advanced Topics, 6cr**  
**Tue, 10:00 AM – 11:30 AM, ZT1202**  
 See: [ZEuS](#)

J. Fuchs

Group 1	Fri	13:30 PM – 15:00 PM	Weekly	ZT1202
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**Data Mining: Basic Concepts**, 6cr  
**Thu, 11:45 AM – 13:15 PM, G201**  
 See: [ZEuS](#)  
 Tutorial (2hours), 3 groups

D. Keim

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

**Word Representations and Language Models**, 6cr  
**Mon, 11:45 AM – 13:15 PM, ZT702**  
**Thu, 10:00 AM – 11:30 AM, ZT702**  
 See: [ZEuS](#)

A. Spitz

**Geographic Information Systems**, 6cr  
**Tue, 13:30 PM – 15:00 PM, ZT1202**  
 See: [ZEuS](#)

D. Keim

Group 1	Fri	11:45 AM – 13:15 PM	Weekly	M630
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**Algorithm Engineering**, 6cr  
**Digital self-study (semester course)**  
 See: [ZEuS](#)

S. Storandt

Group 1	Wed	10:00 AM - 11:30 AM	Weekly	G530
Group 2	Wed	11:45 AM - 1:15 PM	Weekly	C424

**Applications for Powerwall and Virtual Reality Environments**, 6cr  
**Wed, 17:00 PM – 18:30 PM, ZT1202**  
 See: [ZEuS](#)

D. Keim

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

S. Storandt

Group 1	Tue	11:45 AM - 1:15 PM	Weekly	P602
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**Seminar Data Analysis and Visualization**, 3cr.  
**Tue, 15:15 PM – 16:45 PM, ZT1202**  
 See: [ZEuS](#)

M. Miller/ D. Keim

**Image Analysis II: 3D and Motion Reconstruction**, 6cr  
**Wed, 10:00 AM – 11:30 AM, P602**  
 See: [ZEuS](#)

B. Goldlücke

Group 1	Wed	10:00 AM - 11:30 AM	Weekly	tba
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## 4. Advanced Methods: Statistics

**Statistical Learning**, 6cr

26.01.2024 – 16.02.2024

Fri, 09:00 AM – 13:15 PM, E402

Fri, 13:30 PM – 15:00 AM, G310

See: [ZEuS](#)

T. Shafie

**Statistical Analysis of Social Networks**, 3cr

04.03.2024 – 19.03.2024

Mon, 08:15 AM – 13:15 PM, D433 and 13:30 – 18:30, G310

Tue, 08:15 AM – 13:15 PM, D433 and 13:30 – 18:30, G310

See: [ZEuS](#)

T. Shafie

**Event History/Sequence Analysis**, 7cr

Mon, 11:45 AM – 13:15 PM, D433

See: [ZEuS](#)

S. Shikano

**Advanced Time Series Analysis**, 8cr

Mon, 10:00 AM - 11:30 AM, Y311

Fri, 10:00 AM - 11:30 AM, F429

See: [ZEuS](#)

R. Brüggemann

**Advanced Econometrics**, 3 hours, 10cr

Tue, 8:15 AM - 9:45 AM, G530

Wed, 8:15 AM - 9:45 AM, G530

See: [ZEuS](#)

Tutorial (2 hours), 1 group

R. Schüssler

Group 1	Tue	1:30 PM - 3:00 PM	Weekly	F428
Group 2	Wed	1:30 PM - 3:00 PM	Weekly	F428

**Regression Analysis**, 6cr

Fri, 10:00 AM - 11:30 AM, F427

See: [ZEuS](#)

M. Buis

**Datenmathematik**, 9cr

See Focus Area: Mathematics

T. Sutter

## 5. Programming and Scripting

**Python Crash Course / Introduction to Programming with Python**

16/10/2023 – 20/10/2023 (all-day) in room C358 and D406.

See: [ZEuS](#)

Please note: This course is recommended as preparation for “Introduction to Computation for the Social Sciences”.

Indira Senn et al

**Data Analysis with R (in German)**, 7cr

Thu, 10:00 AM – 11:30 AM, BS217

See: [ZEuS](#)

M. Herrmann

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

**Programmierkurs I (Imperative Sprache)**, 6cr J. Fuchs  
See Focus Area: Computer Sciences

**Programmierkurs III**, 2 hours, 3cr G. Diatzko  
See Advanced Methods: Computer Sciences

**R Bootcamp (Blockcourse)**, 6cr M. Meier  
Single date, Fri, 01/12/2023, 13:30 PM – 18:00 PM, ZfP 310 Seminarraum Haus 35 DG  
Single date, Sat, 02/12/2023, 09:00 AM – 15:00 PM, ZfP 310 Seminarraum Haus 35 DG  
Single date, Fri, 15/12/2023, 13:30 PM – 18:00 PM, ZfP 310 Seminarraum Haus 35 DG  
Single date, Sat, 16/12/2023, 09:00 AM – 15:00 PM, ZfP 310 Seminarraum Haus 35 DG  
See: [ZEuS](#)

## **6. Social Science Applications**

**Strukturgleichungsmodelle**, 4cr D. Jendryczko  
Wed, 10:00 AM – 11:30 AM, F429  
See: [ZEuS](#)

**Statistical Analysis of Social Networks**, 3cr T. Shafiei  
04.03.2024 – 19.03.2024  
Mon, 08:15 AM – 13:15 PM, D433, and 13:30 – 18:30, G310  
Tue, 08:15 AM – 13:15 PM, D433 and 13:30 – 18:30, G310  
See: [ZEuS](#)

**Statistical Learning**, 6cr T. Shafiei  
26.01.2024 – 16.02.2024  
Fri, 09:00 AM – 13:15 PM, E402  
Fri, 13:30 PM – 15:00 AM, G310  
See: [ZEuS](#)

**The Social Informatics of Large Language Models**, 6cr D. Garcia  
Tue, 10:00 AM – 11:30, Y311  
See: [ZEuS](#)

**Measurement of Inequality**, 6cr M. Buis  
Wed, 10:00 AM – 11:30 AM, E402  
See: [ZEuS](#)

**Regression Analysis**, 6cr M. Buis  
Fri, 10:00 AM -11:30 AM, F427  
See: [ZEuS](#)

**Timetable Foundation of Data Science (lectures) Winter Semester 2023/24** (subject to alterations)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:15 – 9:45					
10:00 – 11:30	<ul style="list-style-type: none"> <li>- Lineare Algebra I</li> <li>- Diskrete Mathematik und Logik</li> <li>- Mathematik für Wirtschaftswissenschaftler*innen I</li> </ul>	<ul style="list-style-type: none"> <li>- Konzepte der Informatik</li> </ul>		<ul style="list-style-type: none"> <li>- Lineare Algebra I</li> <li>- Mathematik für Wirtschaftswissenschaftler*innen I</li> </ul>	
11:45 – 13:15	<ul style="list-style-type: none"> <li>- Konzepte der Informatik</li> </ul>	<ul style="list-style-type: none"> <li>- Research Design I: Research Design and Causal Inference</li> <li>- Statistics 1 (PSY)</li> <li>- Empirical Research Methods</li> <li>- Empirie: Quantitative Methoden</li> </ul>		<ul style="list-style-type: none"> <li>- Data Mining: Basic Concepts</li> <li>- Introduction to Survey Methodology</li> </ul>	
13:30 – 15:00	<ul style="list-style-type: none"> <li>- Introduction to Computation for the Social Sciences</li> <li>- Statistics 1 (ECO)</li> </ul>	<ul style="list-style-type: none"> <li>- Programmierkurs I</li> <li>- Empirical Research Methods</li> </ul>	<ul style="list-style-type: none"> <li>- Statistics 1 (PSY)</li> </ul>	<ul style="list-style-type: none"> <li>- Datenmathematik</li> </ul>	
15:15 – 16:45	<ul style="list-style-type: none"> <li>- Introduction to Computation for the Social Sciences</li> <li>- Methoden &amp; Geschichte der Psychologie</li> </ul>	<ul style="list-style-type: none"> <li>- Datenmathematik</li> </ul>			
17:00 – 18:30	<ul style="list-style-type: none"> <li>- Mathematics for Political Science</li> <li>- Methoden &amp; Geschichte der Psychologie</li> </ul>				