



Statistics for the Public Good – Infrastructure for Decision Making, Research and Discourse

3 ECTS credits
Winter semester 2022/23

Instructor

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Short Course Description

This course consists out of two parts: A self-learning element conveyed through online videos in the first week and in-person workshops for practical appliance in the second week (see course structure below).

1. In the first part of the course, students will learn about the DNA of official statistics, what quality means and how to achieve it, especially under the challenges of modern societies. In times of data revolution, artificial intelligence and a ubiquitous flood of permanently produced and consumed information, orientation and differentiation of good and less good information, of fact-checks, and of verification of statistical evidence is crucial. The public infrastructure called 'official statistics' plays an essential role in this respect.
2. In the second part of the course, students become familiar with how different societal interests influence the programme and methods of public statistics and how, in turn, the information shapes public discourse. How and to what extent conventions are at the heart of co-production of statistics and society (and what decision-making processes drive them), is the question at the beginning of this practical part. We will approach the answer by taking concrete case studies and questions from the current political landscape and try to answer them with the best possible quantifications. The course participants will take on specific roles of social stakeholders whose interests they represent in these exercises. In doing so, we will gain a deeper understanding of the quality of information, the most important criteria of which are its 'fitness for purpose' and its 'trustworthiness'.

Course Structure

Part	Date	Place	Type	Unit
Week 1: Self-Paced Learning	01.10.2022 – 09.10.2022	Moodle	Online-Videos Self-paced	The Public Good Statistics: A Reflective Introduction
Week 2: Practical Application	10.10.2022 9am – 5pm	LMU Munich	In-person Workshop	The Public Good Statistics: Let's Talk About Data Culture!
	11.10.2022 9am – 5pm	LMU Munich	In-person Workshop	Should Government Data Concern or Serve Us? Guest: Julia Lane
	12.10.2022 9am – 5pm	LMU Munich	In-person Workshop	Values, Ethics and What They Mean for Data Quality
	13.10.2022 9am – 5pm	LMU Munich	In-person Workshop	Data 4 Policy: Is the Statistical Era Being Replaced by an Era of Data?

Long Course Description

The aim of the course is to introduce students to public statistics as a process in which the design, production and communication of information (statistics) are an integral part. As with other products (architecture, furniture, food, cars, smartphones, etc.), the aim is to optimise the design (form) in relation to the use (function) of the products (“form follows function”). In this respect it is about more than just the application of statistical methods.

Rather, the focus must be on the questions that a society wants to have answered with solid statistics for its current, pressing and conflict-laden issues. Other aspects then play a role here, namely whether politics values and finances this infrastructure, whether corresponding data literacy is available in the population at large, and so on.

It is therefore a matter of a very wide-ranging understanding of the conditions for evidence-based policy to actually contribute to shaping the transformation processes that arise in times of crisis and to reducing social conflicts to their minimum. In addition to its function as a common language for public (national and international) discourse, public statistics also serve as a data source and partner for research on individual and social behaviour. New data sources and data science methods open up substantial opportunities for research and for improving statistics. However, the integration of traditional and newer methods requires more than the merging of methodology and technology. Rather, it is also a matter of further developing the other dimensions of good information quality, namely those of infrastructure, language and values, simultaneously in an integrative manner in this sense.

Convention Theory (“*Économie des Conventions*”) will be used as a conceptual guide for the exercises and explorations of statistical terrain in this course. Various use cases relevant to current policy at international and national level will be used, in which the course participants will act as statistical stakeholders with distributed roles, so that they can experience what happens when science meets politics and the media, what compromises become necessary under budgetary constraints and how national interests harmonise (or not) with international interests.

The course is basically open with regard to the solutions elaborated by the course participants for the selected case studies. In this respect, this exercise may well result in a set of recommendations and advice with practical relevance.

The course will proceed in the following sequence of content topics, alternating between introducing new conceptual modules and progressing the work on the case studies:

- The Art of Statistics, The Making of Statistics, The Era of Digitalisation and Globalisation, Evidence and Decision Making
- Convention Theory, Data Ecosystem(s) for the Statistical Information of the Digital Age
- Setting of the Course, Case Studies, Statistical Stakeholders
- The Public Good Statistics: Let's Talk About Data Culture!
- Values, Ethics and What They Mean for Data Quality
- Data 4 Policy: Is the Statistical Era Being Replaced by an Era of Data?
- Wrap-up, Résumé for the Selected Case Studies, Recommendations



Course and Learning Objectives

By the end of the course, students will...

- know the production process of official statistics as well as the institutional set-up of European statistics
- know the types of products and services provided by official statistics
- have a practical understanding and initial experience of how good quality public statistics are produced and what value this has in a society
- understand how stakeholders and (civil) society participate in the making of statistics
- understand the importance of a common language based on (international) statistical standards for the resolution of social conflicts
- have a basic understanding of data literacy and data culture, not only for data professionals but for all types of users of data and statistics
- understand the opportunities offered by new data sources as well as their risks; know the main principles for modern public statistics
- be able to apply the knowledge to the design of evidence for decision making in more complex situations

Grading

Grading will be based on

- Participation in online meetings and workshops
- Oral examination

Readings

Textbook

Radermacher, Walter J. 2020. Official Statistics 4.0 - Verified Facts for People in the 21st Century (Springer Nature Switzerland AG; imprint Springer: Heidelberg) <https://doi.org/10.1007/978-3-030-31492-7>



Primary readings will be from the following volume(s):

Anderson, David R., Dennis J. Sweeney, and Thomas A. Williams. 2020 <https://www.britannica.com/science/statistics>

Beaulieu, A., and S. Leonelli. 2021. *Data and Society: A Critical Introduction* (SAGE Publications).

Davies, William. 2017. 'How statistics lost their power – and why we should fear what comes next', *The Guardian*.

<https://www.theguardian.com/politics/2017/jan/19/crisis-of-statistics-big-data-democracy>

De Smedt, Marleen, Enrico Giovannini, and Walter J. Radermacher. 2018. 'Measuring sustainability.' in Joseph E. Stiglitz, Jean-Paul Fitoussi and Martine Durand (eds.), *For Good Measure: Advancing Research on Well-being Metrics Beyond GDP* (OECD Publishing: Paris), p. 241-281

https://www.oecd-ilibrary.org/economics/for-good-measure_9789264307278-en

Desrosières, Alain. 1998. *The Politics of Large Numbers - A History of Statistical Reasoning* (Harvard University Press: Cambridge Massachusetts).

Diaz-Bone, Rainer. 2016. 'Convention Theory, Classification and Quantification.', *Historical Social Research*, 41: 48-71.

https://www.researchgate.net/publication/305153478_Convention_Theory_Classification_and_Quantification

Diaz-Bone, Rainer, and Kenneth Horvath. 2021. 'Official statistics, big data and civil society. Introducing the approach of “economics of convention” for understanding the rise of new data worlds and their implications', *Statistical Journal of the IAOS*, 37: 219-28.

<https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji200733>

The European Environment Agency (2019). 'Knowledge for a Sustainable XXI Century. Workshop by the EEA and its Scientific Committee. EEA. Brussels, EEA.. <https://www.eea.europa.eu/about-us/who/eeacademy/knowledge-for-a-sustainable-xxi-century>

Eurostat. 2018. 'European Statistics Code of Practice', Eurostat. <http://ec.europa.eu/eurostat/web/quality/european-statistics-code-of-practice>

Eurostat. 2018. 'Quality Assurance Framework of the European Statistical System', Eurostat.

<http://ec.europa.eu/eurostat/documents/64157/4392716/ESS-QAF-V1-2final.pdf/bbf5970c-1adf-46c8-afc3-58ce177a0646>



Hacking, Ian. 1999. *The Social Construction of What?* (Harvard University Press: Cambridge).

Henneguelle, Anaïs , and Arthur Jatteau. 2021. *Sociologie de la quantification* (La Découverte: Paris).

ISI. 2010. "ISI DECLARATION ON PROFESSIONAL ETHICS." In. The Hague NL: International Statistical Institute. <https://www.isi-web.org/about/policies/professional-ethics/isi-declaration>

Porter, Theodore M. 1995. *Trust in numbers: the pursuit of objectivity in science and public life* (Princeton University Press: Princeton, N.J. ; Chichester).

Porter, Theodore M. 2020. 'Probability and statistics'. <https://www.britannica.com/science/probability>.

Radermacher, Walter J. 2019. 'Governing-by-the-numbers - Reflections on the future of official statistics in a digital and globalised society', *Statistical Journal of the IAOS*, 35: 519-37. <https://content.iospress.com/download/statistical-journal-of-the-iaos/sji190562?id=statistical-journal-of-the-iaos%2Fsji190562>

Radermacher, Walter J. 2019. 'Environmental Metrics –What have we learnt? Where to go?' In 62. ISI World Statistics Congress. Kuala Lumpur. https://www.researchgate.net/publication/337102834_Environmental_Metrics_-_What_have_we_learnt_Where_to_go

Radermacher, Walter J. 2020. 'How Statistics Can Help — Going Beyond COVID-19.' In *Data & Policy*. Medium <https://medium.com/data-policy/how-statistics-can-help-going-beyond-covid-19-22bb2ce92440>

Radermacher, Walter J. 2021. "Official statistics: Language for public discourse (Part 1)." In *Medium*, edited by *Data & Policy*. Medium. <https://medium.com/data-policy/official-statistics-language-for-public-discourse-part-1-294d31e56b6e>

Radermacher, Walter J. 2021. 'Governing-by-the numbers – Résumé after one and a half years', *Statistical Journal of the IAOS*, 37: 701-11. <https://content.iospress.com/download/statistical-journal-of-the-iaos/sji210819?id=statistical-journal-of-the-iaos%2Fsji210819>



Radermacher, Walter J. 2021. 'Literacy in statistics for the public discourse', Statistical Journal of the IAOS, 37: 747-52.
<https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji210852>

Radermacher, Walter J. 2022. 'Statistical awareness promoting a data culture', Statistical Journal of the IAOS, 38: 453-61
<https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji220956>

Ricciato, Fabio, Albrecht Wirthmann, Konstantinos Giannakouris, Fernando Reis and, and Michail Skaliotis. 2019. 'Trusted smart statistics: Motivations and principles', Statistical Journal of the IAOS, 35: 589-603. <https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji190584>

Royal Statistical Society. 2019. The Data Manifesto. <https://rss.org.uk/RSS/media/File-library/Policy/2019/9522-RSS-Data-Manifesto.pdf>

Ruppert, Evelyn, and Stephan Scheel. 2021. Data Practices - Making Up a European People (Goldsmiths Press: London).

Schüller, Katharina. 2022. 'Data and AI literacy for everyone', Statistical Journal of the IAOS, 38: 477-90.
<https://content.iospress.com/download/statistical-journal-of-the-iaos/sji220941?id=statistical-journal-of-the-iaos%2Fsj220941>

Umbach, Gaby. 2022. 'Statistical and data literacy in policy-making', Statistical Journal of the IAOS, 38: 445-52.
<https://content.iospress.com/download/statistical-journal-of-the-iaos/sji220962?id=statistical-journal-of-the-iaos%2Fsj220962>

United Nations. 2014. "Fundamental Principles of Official Statistics." In. New York. <https://unstats.un.org/unsd/dnss/gp/FP-New-E.pdf>

United Nations. 2016. 'Sustainable Development Goals'. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

United Nations. 2018. 'Sustainable Development Goal indicators website', United Nations. <https://unstats.un.org/sdgs/>

United Nations. 2022. 'Handbook on Management and Organization of National Statistical Systems', UN, Accessed 2022.08.05.
<https://unstats.un.org/capacity-development/handbook/index.cshtml>



Verhulst, S. (2021). Reimagining data responsibility: 10 new approaches toward a culture of trust in re-using data to address critical public needs. *Data & Policy*, 3, E6. doi:10.1017/dap.2021.4 <https://www.cambridge.org/core/journals/data-and-policy/article/reimagining-data-responsibility-10-new-approaches-toward-a-culture-of-trust-in-reusing-data-to-address-critical-public-needs/A460DE9316452434B0C2950008CB4045>

Wirthmann, Albrecht. 2019. EMOS-Webinar <https://emos2020events.ec.unipi.it/what-is-a-trusted-smart-statistics/>

Additional required readings will be made available on the course website.

Prerequisites

No prerequisites.