

GESIS Summer School in Survey Methodology 2022

Syllabus for course: “Introduction to Survey Design”

Lecturers: Dr. Bella Struminskaya Dr. Peter Lugtig
E-mail: b.struminskaya@uu.nl p.lugtig@uu.nl
Homepage: <https://bellastrum.com> <https://peterlugtig.com>

Date: 08-12 August 2022

Time: Mo: 10:00-17:00 | Tu-Fr: 09:00-17:00

Venue: KOMED, Im Mediapark 7, Cologne

About the Lecturers:

Dr. Bella Struminskaya is an assistant professor in methods and statistics at Utrecht University, The Netherlands. Her research focuses on the design and implementation of online, mixed mode, smartphone surveys, and smartphone sensor studies. She has published on various aspects of data quality, nonresponse, and measurement error, including panel conditioning and device effects, passive data collection, smartphone sensor measurement, and recruitment and maintenance of online panels. Her current research focuses on the design of sensing studies and privacy concerns.

Dr. Peter Lugtig is an associate professor at the Department of Methodology and Statistics at Utrecht University, where he specializes in survey methodology, which includes inferences using a mix of survey data and big data and the modelling of survey errors, and the use of sensor technology in smartphones. His research focuses on improving and evaluating data quality in surveys, particularly longitudinal surveys. He has published articles on the measurement of change, mixed-mode and mixed-device surveys, attrition, and doing surveys on mobile devices.

Selected Publications:

- Struminskaya, B., Toepoel, V., Lugtig, P., Haan, M., Luiten, A., Schouten, B. (2021). Understanding willingness to share smartphone-sensor data. *Public Opinion Quarterly*.
- Struminskaya, B., Toepoel, V., Lugtig, P., Haan, M., Luiten, A., Schouten, B. (2020). Understanding willingness to share smartphone-sensor data. *Public Opinion Quarterly* 84(3), 725-759. <https://doi.org/10.1093/poq/nfaa044>
- Struminskaya, B., Weyandt, K. and Bosnjak, M. (2015). The effects of questionnaire completion using mobile devices on data quality – Evidence from a probability-based general population panel. *methods, data, analyses*, 9 (2), 261–292. <https://doi.org/10.12758/mda.2015.014>
- Lugtig, P and Luiten, A. (2021). Do shorter stated survey length and inclusion of a QR code in an invitation letter lead to better response rates?. *Survey Methods: insights from the field*.
- Lugtig P. (2017) The relative size of measurement error and attrition error in a panel survey. Comparing them using a new Multi-Trait Multi-Method model. *Survey Research Methods*, 4. DOI: 10.18148/srm/2017.v11i4.7170
- Lugtig, P. & Toepoel, V. (2016) The use of PCs, smartphones and tablets in a probability based panel survey. Effects on survey measurement error. *Social Science Computer Review* 34(1). 78-94. DOI: 10.1177/0894439315574248

Course Description:

This course gives an introductory overview of the design and implementation of surveys from the initial planning phase to the data preparation as a final step. Topics include survey mode assessment and selection, sampling frames and designs, nonresponse, questionnaire design, cognitive pretesting, assessing

measurement errors, and data editing. The course is taught from a Total Survey Error perspective weighing data quality at each step of the process against associated costs.

This class is mainly targeted at master and Ph.D. Students that plan on conducting their own surveys.

The course is taught through videos, online class presentations, group exercises as well as personal tutorial meetings that give participants the opportunity to discuss their own survey designs. Each day we will discuss a specific topic that each focuses on one or more aspects of survey design within the Total Survey Error framework.

First, the choice of the survey mode is discussed, and how different ways to sample respondents follow from that choice. On the second day, we focus on the issue of survey nonresponse - how to prevent, analyze, and correct for it. On the third and fourth day, the actual survey content is discussed - how to write survey questions, make sure that they measure what they are intended to measure, test them, and finally, how to assess whether survey data are of good quality. On the final day, we focus on data coding and maximizing quality. We conclude with an overview perspective of all survey errors and their interaction with survey costs. The course will be applicable to surveys of individuals, households, and organizations in different survey modes: mail, face-to-face, web, and paper-and-pencil surveys.

Please note that this is an introductory course (see also course prerequisites and target group).

Keywords:

Introduction, survey methods, survey design

Course Prerequisites:

- No previous experience in survey research is needed; however, some basic practical experience in conducting surveys and analyzing data will be beneficial.
- A basic understanding of statistics is assumed, at the level of basic inferential statistics (t-tests).
- All students need to send a brief summary of their experience with surveys (about 0.5 page) and the questions they have about how to design surveys before the start of the course to the instructors
- Participants should be prepared to share information about the survey they are planning on conducting, they are currently involved with or would like to conduct in the future.

Target Group:

Participants will find the course useful if:

- are thinking about conducting a quantitative survey themselves
- use survey data and wish to understand its potential errors
- are Master or PhD students preparing their own survey
- are researchers who collaborate within a survey research project.

The course is tailored to those relatively new to the area of survey methodology and plans to conduct their own survey in the future. The course does not provide an introduction to data analysis of survey data. Rather, it is focused on the design of surveys.

Course and Learning Objectives:

By the end of the course participants will:

- have a good grasp of the complexities of interacting survey errors
- be able to design a survey project themselves taking the possibility of survey errors into account
- be prepared for more specialized courses at the GESIS Summer School.

Organizational Structure of the Course:

The course days contain four hours of classroom instruction and two hours of tutored individual and group exercises, during which the instructors are available for support. The lectures will include a mix of frontal teaching, short exercises, and question-based discussions. The exercises will take place in the GESIS open study areas in the afternoon and are usually based on group work. There is no obligatory exercise planned for the last afternoon.

Software and Hardware Requirements:

- One laptop computer (provided by GESIS) for teaching purposes (per room) is enough
- Participants might wish to bring a laptop (e.g., to work on exercises/assignments) but not obligatory
- No software is required. This course does not include the use of statistical software.

Day-to-day Schedule and Literature:

Day	Topic(s)
1	<p>Survey processes in various interviewer-assisted and self-completion modes: Sampling strategies and coverage</p> <p>The first day sets the scene of the course. First, we discuss the strengths and weaknesses of surveys as a research design in comparison to other research methods. We introduce the Total Survey Error (TSE) framework and discuss how the survey mode affects the potential for different survey errors. Dimensions of survey mode – computer- vs. paper-based, interviewer-assisted vs. self-completion, and aural vs. visual – are contrasted. During the second part of this day, we dive into the availability of sampling frames and their coverage of the population. We shortly contrast probability and non-probability samples.</p> <p>On this first day, participants receive the opportunity to develop a survey design (mode and sampling strategy) for their own research question and to be guided therein.</p> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Lyberg, L. and Stukel, D. M. (2017). The roots and evolution of the Total Survey Error concept. In: Biemer, Paul P., Edith D. de Leeuw, Stephanie Eckman, Brad Edwards, Frauke Kreuter, Lars E. Lyberg, N. Clyde Tucker, and Brady T. West, eds. Total Survey Error in Practice. John Wiley & Sons. P. 1-22. ▪ Groves, R.M., F.J. Fowler, M.P. Couper, J.M. Lepkowski, E. Singer, and R. Tourangeau (2009) Survey Methodology, 2nd Edition. New York: Wiley and Sons. chapters 2, 3, 5 & 9 ▪ Fowler, F. J. (2009), Survey Research Methods (4th Edition), London: Sage. Chapter 3 (Sampling). ▪ Salganik, M. J. (2018) Bit by Bit. Social Research in the Digital Age. Princeton, NJ: Princeton University Press. Chapter 3 (Asking Questions)
2	<p>Nonresponse processes, prevention, and correction</p> <p>On day two we cover the various types of nonresponse in survey data and how optimizing the data collection processes may minimize them. Specifically, we look at the effects of incentives on nonresponse rates and nonresponse bias. Surveys always contain some degree of nonresponse. The course will show participants how they can correct for unit nonresponse by means of weighting. If time permits, we will talk about the role of interviewers and fieldwork procedures in general to monitor fieldwork. The effect of these treatments on analyzes is demonstrated.</p> <p>On this second day, participants design a fieldwork strategy for their survey that aims to minimize coverage and nonresponse errors.</p> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Groves, R.M. et al. (2009), chapters 6, 10.5 & 10.6 ▪ De Leeuw, E. D., J. J. Hox, and D. Dillman (2008). International Handbook of Survey Methodology. New York, chapters 17 & 19. ▪ Lynn, P. (1996) Weighting for non-response. In Totman et al. Survey and statistical computing, available on: https://pdfs.semanticscholar.org/1e7d/d794cbaf774ecfe578b493859f29ea6c13f2.pdf
3	<p>Questionnaire design and data accuracy</p> <p>The third day looks into the survey response process. We assess why operationalizing our research questions into survey questions can be intricate, which survey factors may affect responses and how different respondents differentially understand our questions. Finally, a bit of time is spent discussing effective lay-out of questionnaires, especially in light of designing web and designing</p>

	<p>or adapting surveys for mobile devices and using new possibilities of collecting smartphone sensor data.</p> <p>On day three, participants develop their own short questionnaire taking into account the design principles covered during class.</p> <hr/> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Groves et al. (2009), chapter 7 ▪ Dillman, D.A., J.D. Smyth, and L.M. Christian (2009) Internet, Mail, and Mixed-Mode: The Tailored Design Method, 3rd Edition. Wiley and Sons, chapters 4 and 5 ▪ Fowler, F.J. (1996) Improving survey questions – design and evaluation. London, Sage, Chapters 1-4 ▪ Tourangeau, R. (2003). “Cognitive aspects of survey measurement and mismeasurement.” International Journal of Public Opinion Research, 15, pp. 3-7
4	<p>Questionnaire testing, mode, interviewers, and cross-national comparisons</p> <p>Day four continues with questionnaire development. Today, however, we will look into methods of pre-testing survey questions, including the qualitative technique of cognitive interviewing. We will focus on the effects of survey modes on measurement error. If time permits, we will discuss eye tracking as a method to test questionnaires and detect errors and problems in questionnaire design.</p> <p>Finally, if time permits, we discuss how to do surveys in different cultures, with the goal of comparing countries within the framework of Total Survey Error.</p> <p>Course participants will practice the pre-testing techniques learned in class with the questionnaires they developed on day three.</p> <hr/> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Groves et al. (2009), chapter 8 ▪ Presser, S., M.P. Couper, J.T. Lessler, E. Martin, J. Martin, J.M. Rothgeb, and E. Singer (2004) “Methods for Testing and Evaluating Survey Questions”, Public Opinion Quarterly, 68 (1): 109-130. ▪ Fowler, F.J. (1996) Improving survey questions – design and evaluation. London, Sage, Chapters 5 and 6. ▪ De Leeuw, E. D., J. J. Hox, and D. Dillman (2008). International Handbook of Survey Methodology. New York, chapter 20. ▪ Pennell, B., Cibelli Hibben, K. L., Lyberg, L., Mohler, P. P., & Worku, G. (2017). A total survey error perspective on surveys in multinational, multiregional, and multicultural contexts. In: Biemer, Paul P., Edith D. de Leeuw, Stephanie Eckman, Brad Edwards, Frauke Kreuter, Lars E. Lyberg, N. Clyde Tucker, and Brady T. West, eds. Total Survey Error in Practice. John Wiley & Sons. P. 179-202.
5	<p>Data preparation: assessing measurement quality, survey quality vs. costs</p> <p>On the final day, we look at how to develop and assess measurement errors after we have collected data. This includes topics such as data preparation, coding, and editing. To conclude the course, we look back at the Total Survey Error framework and evaluate how different costs associated with survey design decisions might affect data quality. We discuss the methods that can be used to assess the different components of the Total Survey Error framework and discuss how we may trade-off survey quality against survey costs. Optionally, we can discuss questions of data protection and research ethics in survey research.</p> <p>On day 5, students will have an opportunity to present their current or future survey projects in the class meeting, and to receive feedback from all participants and the instructors on how to improve the survey design. For this, students are encouraged to send details of their future project to the instructors before Wednesday 12 pm of the week in which this Summer School course is taught. Upon the discussion with the instructors, participants are encouraged to prepare at least two PowerPoint slides: (1) the description of the design/problem statement, (2) questions to the participants they would like to discuss.</p> <hr/> <p><u>Suggested reading:</u></p>

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| | <ul style="list-style-type: none">▪ Groves et al. (2009), chapters 2 (again) & 10▪ Fowler, F. J. (2009), Survey Research Methods (4th Edition), London: Sage. Chapter 9. |
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Preparatory Reading:

No preparatory reading is necessary. We assume participants to have basic knowledge of statistics (descriptive, graphs, and inferential statistics at the level of at least the t-test). During the course, students will find the suggested reading in the course manual helpful in explaining the topics covered in greater detail.

Additional Recommended Literature:

Based on your specific research questions and research projects, we will be able to recommend additional literature during the course.