

10th GESIS Summer School in Survey Methodology

[2nd Virtual GESIS Summer School]

28 July – 20 August 2021

Syllabus for Course 1: Introduction to Survey Design

Lecturers:	Prof. Dr. Bella Struminskaya	Dr. Ulrich Krieger
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Date: 02-06 August 2021
 Time: 09:00 - 16:00
 Time zone: CEST/CEDT, course starts Monday at 09:30 am
 Venue: Online via Zoom

About the Instructors:

Dr. Bella Struminskaya is an assistant professor in methods and statistics at Utrecht University. 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 design of sensing studies and privacy concerns.

Dr. Ulrich Krieger serves as the head of operations at the German Internet Panel and is a survey researcher at the University of Mannheim. In his research he examines survey nonresponse and nonresponse bias, predictive analytics and survey operations. He and his team are currently examining ways to prevent respondents to drop out of panel studies.

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. & Keusch, F. (2020). From web surveys to mobile web to apps, sensors, and digital traces. *Survey Methods: Insights from the Field*, Special issue: 'Advancements in Online and Mobile Survey Methods'. <https://surveyinsights.org/?p=15106>. DOI:10.13094/SMIF-2020-00015
- Struminskaya, B. (2016). Respondent Conditioning in Online Panel Surveys: Results of Two Field Experiments. *Social Science Computer Review*, 34 (1), (pp. 95-115).
- Blom, A., Gathmann, C. & Krieger, U. (2015). Setting up an online panel representative of the general population: the German internet panel. *Field Methods* 27 (4), 391-408.
- Krieger, U. (2018). A Penny for your Thoughts - The Use of Cash Incentives in Face-to-Face Surveys. <https://ub-madoc.bib.uni-mannheim.de/45606>
- Blom, A. G., Herzing, J. M. E., Cornesse, C., Sakshaug, J. W., Krieger, U., & Bossert, D. (2017). Does the recruitment of offline households increase the sample representativeness of probability-based online panels? Evidence from the German internet panel. *Social Science Computer Review: SSCORE*, 35, 498-520.

Short 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 presentation, 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 they:

- 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 plan to conduct their own survey in the future. The course does not provide an introduction into 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:

Lectures, videos, exercise, group studies, tutoring sessions will be held daily throughout the week between 9:00 and 16:00 including breaks.

Software and Hardware Requirements:

None. This course does not include the use of statistical software.

Long Course Description:

Why take a course on survey design?

Surveys are everywhere. Within the social sciences, the majority of empirical studies rely on surveys to collect data on demographics, attitudes, and behavior. Setting up a survey may seem to be a relatively simple process. Everyone can ask questions! In practice, however, conducting a survey often turns out to be hugely complicated, for various reasons. First of all, the number of choices for the basic design of your survey can seem overwhelming. You have to think about the choice of survey mode, obtaining a good sample, limiting nonresponse, asking good questions and analyzing data, all within time and cost constraints.

To make things even more complicated, each individual design choice affects other aspects of the survey design. For example, choosing to do a survey online is generally cheap and quick, but it will be difficult or impossible to obtain a representative sample, and some questions are less suitable to be asked online. Moreover, the correct choice of a survey design depends on your study population and your research question.

This course introduces you to survey design. We will discuss the various stages that you encounter in doing a survey and will evaluate the trade-offs between different design choices you may face. We do this from the perspective of Total Survey Error. The overall goal is to limit the overall error of your survey in order to enable you to give the best answer possible to your research question.

Focus of the course:

The course aims to give an overview of the survey design and survey processes from a Total Survey Error perspective. It prepares students to take more specialized courses in one of the later weeks of the GESIS summer school (see learning objectives).

What will not be covered?

In this course, we will not cover the analysis of survey data. That is, how to analyze your survey data once you have collected it. For this, you will need to take (or have taken) a general statistics course for social scientists. We will also not cover how to work with software for implementing Internet surveys or surveys in other modes. Finally, the course will not cover qualitative interviews. Our course focuses on doing a survey with structured, closed-ended questions. If you would like to learn more about qualitative research and the combination of qualitative and quantitative research, we refer to the course on mixed-methods research. Finally, those individuals with a specific interest in mixing survey modes (Internet, Face-to-Face, phone and mail) are referred to the course on mixed-mode surveys. We do cover mixed-mode surveys, but only shortly. We do discuss how to do survey research in different modes, with about equal amount of attention given to face-to-Face and web surveys, and less attention to paper-and-pencil and telephone surveys.

How will the course work?

During the morning session from 9 am to about 1 pm, the two instructors will give interactive lectures introducing the topics of the day. During these sessions there will be time for Q&A sessions and interactive elements. There will be ample room for discussion, and we encourage students to contribute their own experiences and questions. There will be room for discussing specific topics you may wish to know more about. The lectures include some practical group exercises and demonstrations.

During the afternoon sessions students work in groups on exercises from 3 pm to 4 pm and discuss the exercises together with the lecturers from 4 pm to about 5 pm Monday to Thursday. These exercises will be provided by instruc-

tors and are linked to the materials discussed in the lectures. Students are expected to work on those problems in groups. On day 1, you will design your own sample and choose a survey mode. On day 2, you will design a fieldwork strategy aimed to minimize nonresponse. On days 3 and 4, you will work on designing and evaluating your own questionnaire. We encourage students to work on their own projects during the afternoon sessions but will provide example questionnaires and datasets for those students that do not have their own survey project (yet) to work on. On Friday no exercise is provided. There will be time for students to present their survey-methods-related work and receive feedback from the instructors and peers. Also, the lecturers will be available for one-on-one consultations on students' ongoing projects.

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

<p>3</p>	<p>Questionnaire design and data accuracy</p> <p>The third day will look 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 the light of designing web and designing or adapting surveys for mobile devices and using new possibilities of collecting smartphone sensor data.</p> <p>On day three, participants develop an own short questionnaire, taking into account the design principles covered during class.</p> <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
<p>4</p>	<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. 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> <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.
<p>5</p>	<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 online 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 power-point slides: (1) the description of the design/problem statement, (2) questions to the participants they would like to discuss.</p> <p><u>Suggested reading:</u></p> <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.

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.