SOCI / SRAM 921: Total Survey Error
Spring 2016
Tuesday, 1:15-4:00 PM
Nebraska Hall W106

Instructor:	Dr. Kristen Olson
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Office hours:	Monday, 3:30-4:30 PM, Wednesday, 4:00-5:00 PM or by appointment
Prerequisites:	Data Collection Methods (SOCI/SRAM 818) or equivalent or permission of instructor

A. Overview of Course

There are five main sources of error that all survey estimates may encounter: **Coverage error**, **Nonresponse error**, **Sampling error**, **Measurement error**, and **Processing and estimation error**.

Various features of a survey design can affect the size of these errors (e.g., interviewer training and monitoring, sample design and size, effort at persuading sample persons to cooperate, edit and imputation procedures). Each feature has cost implications for the survey and thus limits on error are sometimes budget-driven. Further, several of these errors can be linked to one another in practice – attempting to decrease one may merely increase or decrease another (e.g., decreasing nonresponse errors through persuasive efforts may increase or decrease measurement errors in reported answers).

Because students will cover sampling error in greater detail in other courses, sampling error will be deemphasized in this course.

B. Goals of the Course

The course assumes that students know and understand basic implications of sample design and data collection methods, but lack some knowledge of other aspects of surveys. This course covers research that seeks to understand the causes of survey errors. As such, this course presents material on how design decisions affect survey errors. From this course, students will learn principles that should apply to many types of surveys. The class will focus on empirical research on household surveys. However, the constructs can be applied to surveys of establishments and of special populations.

Survey methodology literature is often separated into social science and statistical science approaches. These two literatures often overlap, but provide very different information about how we think about and understand surveys. Both literatures examine approaches to reducing and to measuring error sources. Both literatures may posit causes for an error source. However, the two sides rarely talk to each other. We will examine research in both the statistical and social science approaches to survey methodology in this course. We also will investigate how design decisions may affect the tradeoff between costs and errors in survey designs.

In particular, this course has five main goals.

1. Develop a common language of survey errors across disciplines.
2. Examine each error source individually. For each error source, the following three questions will be addressed:
    a. What is the cause of the error?
    b. What techniques are used to reduce the error in practice?

    c. What statistical models exist to measure the error, and what designs are needed to make the models estimable?
3. Explore, to the extent possible, the implications of design decisions on survey costs.
4. Investigate how decisions to reduce or measure one error source may affect other error sources.
5. Develop skills for communicating and critiquing scientific research ideas using standard literary forms for the discipline.

This course is not a "hands on" course for doing surveys or a "hands on" statistical analysis course. However, the course will examine in detail how survey practice and survey estimates are affected by survey errors.

C. Format of the Course

The course will be run as an advanced graduate level seminar. As such, the reading load may be heavier than in other courses. Students will need to develop skills of quickly reading and absorbing material from the texts. The course will consist primarily of discussion of the readings. The instructor will supplement the more difficult readings with lectures, as necessary.

Students are expected to have read all of the required readings before each class. Recommended readings are provided for those who are interested in further background knowledge. The required readings will be both fundamental readings for the field and recent research on each error source. Changes in readings and assignments will be announced in class and/or on Blackboard. Failure to attend class is not a valid reason for not knowing about changes in readings and assignments.

D. Attendance and Participation

Attendance is mandatory. Reasonable reasons for absence (family emergency, illness) will be accepted. All planned absences must be approved by the instructor at least one week before the absence to be considered excused. Late arrivals are disruptive to class discussion. All late arrivals not approved before the class meeting time by the instructor will result in a lowered participation grade.

Attendance alone is not sufficient for a full participation grade. Given the nature of the class, participation in <u>every</u> class discussion and in critiques of each other's mini-proposals is necessary for full participation grades.

All students are expected to participate in <u>every</u> class discussion. Failure to participation in every class period will result in a reduced participation grade. For example, students who make meaningful contributions in roughly 50% of the class periods should expect a 50 point participation grade. To ensure that everyone participates, the instructor will call on people occasionally. However, students who repeatedly fail to participate on their own accord and only participate when called on by the instructor will receive a reduced participation grade. Additionally, students are expected to bring ALL reading materials to class every week. Failure to bring materials to class will result in a reduction of 5 points for each class without materials from the total participation grade.

Students may earn up to 100 points for attendance and participation.

E. Discussion Board Postings

Every student must post (1) one thing you learned from the readings (with appropriate citations) and (2) two questions that you have from each week's readings on Blackboard by 6:00 PM on the day before

class (Monday evening, 6:00 PM). (These can be posted earlier; Monday at 6:00 PM is simply the latest by which they can be posted). The discussion must be about the assigned readings for the week and empirically/ academically/ scientifically-oriented.

Content for the discussion board postings may vary. Possible discussion board posts about what was learned could address the student's thoughts on how the week's readings inform the three questions for each error source (What is the cause of the error? What techniques are used to reduce the error in practice? What statistical models exist to measure the error, and what designs are needed to make the models estimable?) or inconsistencies seen across the readings, among others.

Each student must create an original thread. Topics may overlap across students, but each student must have an original discussion post. All posts must be about the methodological content of the readings. You will be required to post an original thread before reading other students' posts.

All posts must be respectful of the other students in the class and of the instructor. Any inappropriate posts will receive a grade of zero for the week and will be immediately removed by the instructor. Posts about irrelevant topics or that do not address the week's readings will also be assigned a grade of zero.

The goal of the discussion board posts is to facilitate discussion of the class readings in and out of class. It is also to help the instructor identify where students may need more help with the readings for in-class discussion.

Late posts (after Monday 6:00 PM and before Tuesday 12:00 PM) will be downgraded. Weeks in which no post or replies are made will be assigned a grade of zero.

Each post can earn up to 5 points as follows:

5 points	Post made on time. Addresses and cites the week's readings, uses terminology and concepts appropriately. Well-written post. Appropriate length. Includes one thing learned and two questions.
4 points	Post made on time. Does not address readings or addresses/cites incorrectly; incorrect use of terminology or concepts. Slightly off-topic posts. Poorly written post. Inappropriate length. Includes one thing learned and two questions.
3 points	Post made late (after Monday 6:00 PM and before Tuesday 12:00 PM). Addresses the week's readings, uses terminology and concepts appropriately. Appropriate length. Omits either one thing learned or two questions.
2 points	Post made late (after Monday 6:00 PM and before Tuesday 12:00 PM). Does not address readings or addresses/cites incorrectly; incorrect use of terminology or concepts. Slightly off-topic posts. Poorly written post. Inappropriate length. Omits either one thing learned or two questions.
0 points	Missing post for the week. Inappropriate or irrelevant posts. Posts made after 12:00 PM on day of class.

Students are responsible for making discussion board posts and keeping track of the number of replies (without an original contribution) that count toward their final grade. Weeks during which no reading is assigned do not require discussion board posts.

F. Mini-Proposals

Proposal writing is a key feature of life as a scientist. The skill of finding gaps in the literature, deriving a scientific question with a design to answer those gaps, and articulation of both the question and design

must be refined through repeated practice. As such, each student will complete two "mini-proposals," each addressing a different methodological question and error source, throughout the semester.

Providing fast, useful feedback and critique of work to colleagues is another important skill to develop as a scientist. Throughout the course, students will be expected to give both verbal and written critiques of each other's mini-proposals. Students will be the primary reviewer with written critiques on two mini-proposals throughout the semester.

All mini-proposals must be written professionally, free of grammatical and spelling errors. Students who need help with academic writing or editing their mini-proposals should contact UNL's Writing Center. More information about the Writing Center can be found here: http://www.unl.edu/writing/students.

More information about the mini-proposal and primary reviewer assignments will be distributed during the first class. Ph.D. students are strongly encouraged to use at least one mini-proposal to develop an idea for their dissertation.

G. Grades

Students may earn points for participation, discussion board posts, each of the mini-proposals, and the written mini-proposal critique. The grades will be composed as follows:

	Percent of Final Grade
Class Participation	25
Discussion Board Posts	15
Mini-proposal #1	25
Mini-proposal #2	25
Mini-proposal Critique #1	5
Mini-proposal Critique #2	5
Total	100

Final grades will be assigned as follows: A+ (99-100), A (98.9-93), A- (92.9-90), B+ (89.9-87), B (86.9-83), B- (82.9-80), C+ (79.9-77), C (76.9-73), C- (72.9-70), D+ (69.9-67), D (66.9-63), D- (62.9-60), F (0.0-59.9). There will be no curve.

To earn an A grade, students must perform consistently at the highest level, participate in every class, have high quality discussion board posts, have innovative and important mini-proposal ideas, and respond thoroughly and appropriately to comments and critiques on their mini-proposals. Simply 'doing the work' is not sufficient to earn an A grade.

The class may be taken as Pass/No Pass. Students must earn a B or higher to receive a 'Pass' grade.

H. Plagiarism and Academic Honesty

Plagiarism or other violations of academic honesty as covered by the Student Code of Conduct will result in immediate failure of the class. Students should use appropriate citations in all written work, even in discussion posts. All students should carefully review and be familiar with the Graduate Studies discussion of plagiarism: http://www.unl.edu/gradstudies/current/integrity#plagiarism

I. Grade Appeals Policy

Students who wish to appeal a grade must follow the following procedures.

1. Wait at least 24 hours from the time that the grade is assigned before filing an appeal.
2. Provide to the instructor, in writing, a detailed description of the content of the work that is in question. The student must also address how comments given by the instructor on the assignment are inaccurate. Grades that are appealed because the student feels that a grade does not reflect the "effort" put into the assignment or class will not be changed. Grades are based solely on the content of the material.
3. The instructor will regrade the assignment in question. Be advised that the grade can go up or down in the regarding process.
4. The student will receive the revised grade. Students who would like to further appeal the grade can appeal to the Graduate Chair in the Sociology program.

Grades that are incorrect because of a simple miscalculation of total points can be corrected by directly talking to the instructor.

J. Accommodations for students with disabilities

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Services for Students with Disabilities (SSD) provides individualized academic support for students with documented disabilities. Support services can include extended test time, textbooks and handouts in alternative formats (electronic texts, Braille, taped texts, etc.), classroom notes, sign language interpreters, and transcriptionists. SSD not only accommodates students who have visible disabilities, but also students with other types of disabilities that impact college life. If you have a documented disability that is impacting your academic progress, please call SSD at 472-3787 and schedule an appointment. If you do not have a documented disability but you are having difficulties with your coursework (such as receiving low grades even though you study more than your classmates or find you run out of time for test questions when the majority of your peers finish their exams in the allotted time), you may schedule an appointment to discuss the challenges you are experiencing.

K. Technology and other Distractions Policy

Students must turn off their cell phones, Blackberries, iPhones, and iPods and other devices used for phone calls, entertainment, or social media when entering the classroom unless the instructor has said otherwise. Any student who makes or receives a phone call or text message, listens to an MP3 player, or uses any unauthorized electronic device during the class period will receive an automatic 5 point deduction from his/her final grade for each use of the electronic device. All newspapers, magazines, or any other material other than that necessary for this class also must be put away when entering the classroom. Any student who is seen reading a newspaper, magazine, or anything not related to this class will receive an automatic 5 point deduction from his/her final grade for each use of this material.

Students may use laptops, eReaders, or tablet computers to take notes and for class readings. Students who use these devices for email, social media, or other non-class-related purposes will be asked to put away their device immediately. They will lose 10 points from their final grade, and will have their privilege of using electronic devices of any kind revoked for the rest of the semester. The instructor

reserves the right to look at the screen of any electronic device used in class to ensure it is being used for appropriate class purposes. Refusal to permit the instructor to see the screen of an electronic device will result in 20 points being subtracted from the student's final grade, and they will have their privilege of using electronic devices of any kind revoked for the rest of the semester. Repeated infractions of this policy will result in the use of any electronic devices revoked for the entire class for the rest of the semester.

Required Readings (Subject to change)

Required texts

Groves, R.M. 1988. *Survey Errors and Survey Costs*. New York: John Wiley and Sons. (2004 printing available in paperback)
Biemer, P.P. and Lyberg, L.E. 2003. *Introduction to Survey Quality*. New York: John Wiley and Sons.
Kreuter, F. 2013. *Improving Surveys with Paradata: Analytic uses of Process Information.* Hoboken: John Wiley and Sons.
Roller, M.R. and Lavrakas, P.J. 2015. *Applied Qualitative Research Design: A Total Quality Framework Approach.* New York: Guilford Press.

Recommended texts
Biemer, P.P., R.M. Groves, L.E. Lyberg, N.A. Mathiowetz, and S. Sudman. Measurement Errors in Surveys. New York: John Wiley and Sons.
Dillman, D.A., J. D. Smyth, and L.M. Christian. 2009. Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method, 3rd Edition. New York: Wiley.
Groves, R.M.; Dillman, D.A.; Eltinge J.L.; and Little R.J.A. (eds.), Survey Nonresponse, New York: John Wiley and Sons.
Lessler, J.T. and Kalsbeek, W.D. 1992. Nonsampling Errors in Surveys. New York: John Wiley and Sons.
Lyberg, L., P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. Survey Measurement and Process Quality. New York: John Wiley and Sons.

January 12 – Course Overview, Overview of Mini-Proposals, Introduction to Literature Reviews, Discussion of Plagiarism

Roller and Lavrakas, Chapter 8
NIH Writing Tips for Proposals: http://grants.nih.gov/grants/writing_application.htm
NIH Quick Guide for Grant Writing: http://deainfo.nci.nih.gov/extra/extdocs/gntapp.pdf
NSF Grant Proposal Guide:
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg15001&org=NSF

Recommended Readings:
NSF Graduate Research Fellowship Program:
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=SBE&sel_org=SBE&from=fund
Methodology, Measurement and Statistics page for Dissertation Grants:
http://www.nsf.gov/sbe/ses/mms/mmsdiss.jsp and
http://www.nsf.gov/pubs/2014/nsf14574/nsf14574.htm

January 19 – Introduction to Survey Errors

Groves, Robert M. 1988. *Survey Errors and Survey Costs.* Chapters 1-2. Pp. 1-80.
Groves, Robert M. and Lars Lyberg. 2010. "Total Survey Error: Past, Present and Future." *Public Opinion Quarterly.* 74(5): 849-879.
Kreuter, F. 2013. "Improving Surveys with Paradata: Introduction." *Improving Surveys with Paradata: Analytic uses of Process Information.* Hoboken: John Wiley and Sons. Chapter 1, pp. 1-9.
Roller, Margaret R. and Paul J. Lavrakas. 2015. Applied Qualitative Research Design: A Total Quality Framework. Chapter 2, pp. 15-49.

Recommended readings
Czaja, Ronald and Johnny Blair. 2005. Designing Surveys. 2nd Edition. Thousand Oaks: Pine Forge Press.
Fowler, Floyd J. 2009. Survey Research Methods. 4th Edition. Thousand Oaks: Sage.

Groves, Robert M. Floyd J. Fowler, Jr., Mick P. Couper, James M. Lepkowski, Eleanor Singer, and Roger Tourangeau. 2004. Survey Methodology. New York: John Wiley and Sons.

January 26 – Coverage Errors, Whole-unit coverage

Groves, Robert M. 1988. *Survey Errors and Survey Costs.* Chapter 3. Pp. 81-132

Eckman, Stephanie. 2013. Paradata for Coverage Research. *Improving Surveys with Paradata: Analytic uses of Process Information.* Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 5, pp. 97-120.

Gundersen, D. A., ZuWallack, R. S., Dayton, J., Echeverría, S. E., & Delnevo, C. D. (2014). Assessing the Feasibility and Sample Quality of a National Random-digit Dialing Cellular Phone Survey of Young Adults. *American Journal of Epidemiology, 179*(1), 39-47. doi:10.1093/aje/kwt226

Kalton, G., Kali, J., & Sigman, R. (2014). Handling Frame Problems When Address-Based Sampling Is Used for In-Person Household Surveys. *Journal of Survey Statistics and Methodology, 2*(3), 283-304. doi:10.1093/jssam/smu013

Mulry, Mary H. 2014. "Measuring undercounts for hard-to-survey groups." Chapter 3 in *Hard-to-Survey Populations*. Roger Tourangeau, Brad Edwards, Timothy P. Johnson, Kirk M. Wolter, and Nancy Bates, eds. Cambridge. Pp. 37-57.

Recommended readings:

Blumberg, S.J. and Luke, J.V., 2007. "Wireless Substitution: Early Release of Estimates Based on Data from the National Health Interview Survey, January –June 2008." National Center for Health Statistics. Available from http://www.cdc.gov/nchs/nhis.htm. December 17, 2008.

Dohrmann, S., Han, D., Mohadjer, L. "Residential Address Lists vs. Traditional Listing: Enumerating Households and Group Quarters." 2006. Proceedings of the Survey Research Methods Section, American Statistical Association. Pp. 2959-2964.

Eckman, S., & Kreuter, F. (2013). Undercoverage Rates and Undercoverage Bias in Traditional Housing Unit Listing. Sociological Methods & Research, 42(3), 264-293. doi: 10.1177/0049124113500477

Eckman, Stephanie and Frauke Kreuter. 2011. "Confirmation Bias in Housing Unit Listing." Public Opinion Quarterly 75:139-150.

Iachan, R., and Dennis, M. 1993. "A Multiple Frame Approach to Sampling the Homeless or Transient Populations." Journal of Official Statistics. 9: 747-764.

Iannacchione, V.G., Staab, J.M., and Redden, D.T. 2003. "Evaluating the Use of Residential Mailing Addresses in a Metropolitan Household Survey." Public Opinion Quarterly. 67: 202-210.

Iannacchione, Vincent G. 2011. "The Changing Role of Address-Based Sampling in Survey Research." Public Opinion Quarterly 75:556-575.

Judkins, D., DiGaetano, R., Chu, A. and Shapiro, G. 1999. "Coverage in Screening Surveys at Westat." Proceedings of the Survey Research Methods Section, American Statistical Association. Pp. 581-586.

Keeter, S., Kennedy, C., Clark, A., Tompson, T., and Mokrzycki, M. 2007. "What's Missing from National RDD Surveys? The Impact of the Growing Cell-Only Population." Public Opinion Quarterly. 71(5): 772-792.

Martin, E., Laska, E., Hopper, K., Meisner, M., and Wanderling, J. 1997. "Issues in the Use of a Plant-Capture Method for Estimating the Size of the Street Dwelling Population." Journal of Official Statistics. 13: 59-73.

Mulry, M.H., Bean, S.L. Bauder, D.M., Wagner, D., Mule, T., and Petroni, R.J. 2006. "Evaluation of Estimates of Census Duplication Using Administrative Records Information." Journal of Official Statistics. 22: 655-679.

Peytchev, A., & Neely, B. (2013). RDD Telephone Surveys: Toward a Single-Frame Cell-Phone Design. Public Opinion Quarterly, 77(1), 283-304. doi: 10.1093/poq/nft003

February 2 – Coverage Errors, Within-Unit Selection Issues

Le, K. T., Brick, J. M., Diop, A., & Alemadi, D. (2013). Within-Household Sampling Conditioning on Household Size. *International Journal of Public Opinion Research, 25*(1), 108-118. doi:10.1093/ijpor/eds008

Martin, E. 2007. "Strength of Attachment: Survey Coverage of People with Tenuous Ties to Residence." *Demography*. 44: 427-440.

Olson, K., Stange, M., & Smyth, J. (2014). Assessing Within-Household Selection Methods in Household Mail Surveys. *Public Opinion Quarterly, 78*(3), 656-678. doi:10.1093/poq/nfu022

Tourangeau, R., Kreuter, F., & Eckman, S. (2012). Motivated Underreporting in Screening Interviews. *Public Opinion Quarterly, 76*(3), 453-469. doi: 10.1093/poq/nfs033

Tourangeau, R., Shapiro, G., Kearney, A., and Ernst, L. 1997. "Who Lives Here? Survey Undercoverage and Household Roster Questions." *Journal of Official Statistics*. 13: 1-18.

* Gaziano, C. 2005. "Comparative Analysis of Within-Household Respondent Selection Methods." *Public Opinion Quarterly*. 69: 124-157. (Read if haven't read previously)

Recommended Readings:

Battaglia, M.P., M.W. Link, M.R. Frankel, L. Osborn, and A.H. Mokdad. 2008. "An Evaluation of Respondent Selection Methods for Household Mail Surveys." Public Opinion Quarterly. 72(3): 459-469.

Biemer, P.P., Woltmann, H., Raglin, D., and Hill, J. 2001. "Enumeration Accuracy in a Population Census: An Evaluation Using Latent Class Analysis." Journal of Official Statistics. 17: 129-148.

Brick, J. Michael, Douglas Williams, and Jill M. Montaquila. 2011. "Address-Based Sampling for Subpopulation Surveys." Public Opinion Quarterly 75:409-428.

Harris-Kojetin, B.A. and Couper, M.P. 1998. "An Exploration of Coverage in Four Demographic Surveys." Proceedings of the Survey Research Methods Section, American Statistical Association. 266-271.

Kish, Leslie. 1949. "A Procedure for Objective Respondent Selection within the Household." Journal of the American Statistical Association. 44: 380-387.

Martin, Elizabeth. "Who Knows Who Lives Here? Within-Household Disagreements as a Source of Survey Coverage Error." Public Opinion Quarterly. 63(2): 220-236.

Oldendick, R.W., Bishop, G.F., Sorenson, S.B., and Tuchfarber, A.J. 1988. "A Comparison of the Kish and Last Birthday Methods of Respondent Selection in Telephone Surveys." Journal of Official Statistics. 4: 307-318.

February 9 – Mini-Proposal #1 Discussion (Coverage Errors)

Students will post the drafts of their mini-proposals to Blackboard by 6:00 PM on February 8.

February 16 – Unit Nonresponse; Revised Mini-Proposal #1 Due

Durrant, Gabriele B. and Fiona Steele. 2009. "Multilevel modelling of refusal and non-contact in household surveys: evidence from six UK Government surveys." *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 172:361-381.

Groves, R.M. 2006. "Nonresponse Rates and Nonresponse Bias in Household Surveys." *Public Opinion Quarterly*. 70: 646-675.

Kreuter, F. and Olson, K. 2013. "Paradata for Nonresponse Error Investigation." *Improving Surveys with Paradata: Analytic uses of Process Information.* Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 2, pp. 13-42.

Lee, S., H.A. Nguyen, M. Jawad, and J. Kurata. 2008. "Linguistic Minorities in a Health Survey." *Public Opinion Quarterly*. 72(3): 470-486.

Wagner, J. (2012). A Comparison of Alternative Indicators for the Risk of Nonresponse Bias. *Public Opinion Quarterly, 76*(3), 555-575. doi: 10.1093/poq/nfs032

Recommended Readings

Groves, R.M. and Heeringa, S.G. 2006. "Responsive design for household surveys: tools for actively controlling survey errors and costs." Journal of the Royal Statistical Society, A. 169: 439-457.

AAPOR, The American Association for Public Opinion Research. 2008. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. Revised 2008. Lenexa, Kansas: AAPOR.

Bogen, Karen. 1996. "The Effect of Questionnaire Length on Response Rates - A Review of the Literature." Pp. 1020-1025 in Proceedings of the Survey Research Methods Section, American Statistical Association: American Statistical Association.

Brehm, John. 1993. The Phantom Respondents: Opinion Surveys and Political Representation. Ann Arbor, MI: The University of Michigan Press.

Curtin, R., Presser S., and Singer, E. 2000. "The Effects of Response Rate Changes on the Index of Consumer Sentiment." Public Opinion Quarterly. 64: 413-428.

Curtin, R., Presser S., and Singer, E. 2005. "Changes in Telephone Survey Nonresponse over the Past Quarter Century." Public Opinion Quarterly. 69: 87-98.

de Leeuw, Edith and W. de Heer. 2002. "Trends in Household Survey Nonresponse: A Longitudinal and International Perspective." Pp. 41-54 in Survey Nonresponse, edited by R. M. Groves, D. A. Dillman, J. L. Eltinge, and R. J. A. Little. New York: John Wiley & Sons, Inc.

Deming, W.E. 1953. "On a Probability Mechanism to Attain an Economic Balance Between the Resultant Error of Response and the Bias of Nonresponse." Journal of the American Statistical Association 48:743-772.

Dillman, D.A., J.D. Smyth, and L.M. Christian. 2009. "The Tailored Design Method." Chapter 2 in Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method. New York: Wiley. Pp. 15-40.

Goyder, J. 1987. The Silent Minority: Nonrespondents on Sample Surveys. Boulder, CO: Westview Press.

Groves R.M. and Couper, M.P. 1998. Nonresponse in Household Interview Surveys. New York: John Wiley and Sons. Chapters 1-2. Pp. 1-46

Groves, R.M. and E. Peytcheva. 2008. "The Impact of Nonresponse Rates on Nonresponse Bias: A Meta-Analysis." Public Opinion Quarterly. 72(2): 167-189.

Groves, R.M., Singer E., and Corning, A. 2000. "Leverage-Saliency Theory of Survey Participation: Description and an Illustration." Public Opinion Quarterly. 64:299-308.

Jäckle, A., Lynn, P., Sinibaldi, J., & Tipping, S. (2013). The effect of interviewer experience, attitudes, personality and skills on respondent co-operation with face-to-face surveys Survey Research Methods, 7(1), 1-15.

Keeter, S., Kennedy, C., Dimock, M., Best, J. and Craighill, P. 2006. "Gauging the Impact of Growing Nonresponse on Estimates from a National RDD Telephone Survey." Public Opinion Quarterly. 70: 759-779.

Keeter, S., Miller, C., Kohut, A., Groves, R.M., and Presser, S. 2000. "Consequences of Reducing Nonresponse in a National Telephone Survey." Public Opinion Quarterly. 64: 125-148.

Lin, I-Fen, and Nora Cate Schaeffer. 1995. "Using Survey Participants to Estimate the Impact of Nonparticipation." Public Opinion Quarterly 59:236-258.

Lynn, Peter. 2003. "PEDAKSI: Methodology for Collecting Data about Survey Non-Respondents." Quality & Quantity 37:239–261.

Merkle, D.M. and Edelman, M. 2002. "Nonresponse in Exit Polls: A Comprehensive Analysis." In Survey Nonresponse, Chapter 16. Wiley. Pp. 243-257.

Olson, Kristen. 2006. "Survey Participation, Nonresponse Bias, Measurement Error Bias, and Total Bias." Public Opinion Quarterly 70:737-758.

Singer, Eleanor. 2002. "The Use of Incentives to Reduce Nonresponse in Household Surveys." Pp. 163-177 in Survey Nonresponse, edited by Robert M. Groves, Don A. Dillman, John L. Eltinge, and Roderick J. A. Little. New York: John Wiley & Sons, Inc.

February 23 – Item Nonresponse

Beatty, P.; and Herrmann, D. (2002), "To Answer or Not to Answer: Decision Processes Related to Survey Item Nonresponse," in Groves, R.M.; Dillman, D.A.; Eltinge J.L.; and Little R.J.A. (eds.), *Survey Nonresponse*, pp. 71-85, New York: John Wiley and Sons.

De Leeuw, E.D., Hox, J., and Huisman, M. 2003. "Prevention and Treatment of Item Nonresponse." *Journal of Official Statistics.* 19: 153-176.

Juster, F. T.; and Smith, J. P. (1997), "Improving the Quality of Economic Data: Lessons from the HRS and AHEAD," *Journal of the American Statistical Association*, 92, pp. 1268-78.

Krosnick, J. A. (2002). "The causes of no-opinion responses to attitude measures in surveys: They are rarely what they appear to be." In R. M. Groves, D. A. Dillman, J. L. Eltinge, & R. J. A. Little (Eds.), *Survey nonresponse*. New York: Wiley. Pp. 87-100.

Sakshaug, Joseph W. (2013). "Using Paradata to Study Response to Within-Survey Requests." *Improving Surveys with Paradata: Analytic uses of Process Information.* Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 8, pp. 171-190.

Recommended Readings:

Converse, Philip. 1964. "The nature of belief systems in mass publics." In Ideology and discontent, edited by Apter, David. (New York: Free Press).

Gonzalez, Jeffrey M. and John L. Eltinge. 2007. "Multiple Matrix Sampling: A Review." Proceedings of the American Statistical Association, Survey Research Methods Section. 3069-3075.

Mathiowetz, Nancy A. 1998. "Respondent Expressions of Uncertainty: Data Source for Imputation." Public Opinion Quarterly. 62(1): 47-56.

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March 1 – Statistical Models for Unit and Item Nonresponse

Brick, J.M. Unit Nonresponse and Weighting Adjustments: A Critical Review. *Journal of Official Statistics*. 29(3): 329-353. DOI: 10.2478/jos-2013-0026

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Graham, J. W. (2009). Missing Data Analysis: Making It Work in the Real World. Annual Review of Psychology, 60(1), 549-576. doi: doi:10.1146/annurev.psych.58.110405.085530

Heeringa, S.; Little, R.; and Raghunathan, T. (2002) "Multivariate Imputation of Coarsened Survey Data on Household Wealth," in R. Groves; D. Dillman; J. Eltinge; and R. Little (eds.) Survey Nonresponse, New York: John Wiley and Sons.

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Rubin, Donald B. 1986. "Basic Ideas of Multiple Imputation." Survey Methodology. 12(1): 37-47.

T. E. Raghunathan, J. M. Lepkowski, J.VanHoewyk and P. Solenberger. "A Multivariate Technique for Multiply Imputing Missing Values Using a Sequence of Regression Models." Survey Methodology, 2001, 27:85-95.

Yeager, David S., Jon A. Krosnick, LinChiat Chang, Harold S. Javitz, Matthew S. Levendusky, Alberto Simpser, and Rui Wang. 2011. "Comparing the Accuracy of RDD Telephone Surveys and Internet Surveys Conducted with Probability and Non-Probability Samples." Public Opinion Quarterly 75:709-747.

March 8 – Mini-Proposal #2 Discussion (Nonresponse Error)

Students will the drafts of their mini-proposals on Blackboard by 6:00 PM on March 7.

March 15 – Overview of Survey Measurement Error, Mini-Proposal #2 Due

Groves, Chapter 7

Biemer and Lyberg, Chapter 8

Roller and Lavrakas, Chapter 4

Biemer, P.P. and Trewin, D. "A Review of Measurement Error Effects on the Analysis of Survey Data." Chapter 27 in *Survey Measurement and Process Quality.* Edited by L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. New York: John Wiley and Sons. Pp. 603-632.

Olson, K. and Parkhurst, B. 2013. Collecting Paradata for Measurement Error Evaluations. *Improving Surveys with Paradata: Analytic uses of Process Information.* Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 3, pp. 43-72.

Recommended Readings

Forsyth, B.H. and Lessler, J.T. 1991. "Cognitive Laboratory Methods: A Taxonomy." Chapter 20 in Measurement Errors in Surveys. Edited by P.P. Biemer, R.M. Groves, L.E. Lyberg, N.A. Mathiowetz, and S. Sudman. New York: John Wiley and Sons. Pp. 394-418.

Groves, Robert M. "Measurement Error Across the Disciplines." Chapter 1 in Measurement Errors in Surveys. New York: Wiley. Pp. 1-29.

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March 22 – Spring Break, No Class

March 29 – Measurement Error Estimation Techniques

Biemer, P. and Stokes, S. L. 1991. "Approaches to the Modeling of Measurement Errors." Chapter 24 in *Measurement Errors in Surveys.* Edited by P.P. Biemer, R.M. Groves, L.E. Lyberg, N.A. Mathiowetz, and S. Sudman. New York: John Wiley and Sons. Pp. 487-517.

Blair, Johnny and Frederick G. Conrad. 2011. "Sample Size for Cognitive Interview Pretesting." *Public Opinion Quarterly* 75:636-658.

Rodgers, W.L., C. Brown, and G.J. Duncan. 1993. "Errors in Survey Reports of Earnings, Hours Worked, and Hourly Wages." *Journal of the American Statistical Association* 88:1208-1218. [Example of Model 0]

Scherpenzeel, A. and W.E. Saris. 1997. "The Validity and Reliability of Survey Questions: A Meta-Analysis of MTMM Studies." *Sociological Methods and Research.* 25(3): 341-383. [The classic example of how MTMM is used]

Yan, Ting and Kristen Olson. 2013. "Analyzing Paradata to Investigate Measurement Error." *Improving Surveys with Paradata: Analytic uses of Process Information.* Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 4, pp. 73-95.

Recommended Readings

Alwin, Dwayne F. Margins of Error: A Study of Reliability in Survey Measurement. New York: Wiley.

Clogg, Clifford C. 1984. "Some Statistical Models for Analyzing Why Surveys Disagree." Chapter 11 in Surveying Subjective Phenomena. Russell Sage Foundation. Charles F. Turner and Elizabeth Martin, eds. 319-366.

DeVellis, Robert F. Scale Development: Theory and Applications. Sage.

Forsman, G. and Schreiner, I. 1991. "The Design and Analysis of Reinterview: An Overview." Chapter 15 in Measurement Errors in Surveys. Edited by P.P. Biemer, R.M. Groves, L.E. Lyberg, N.A. Mathiowetz, and S. Sudman. New York: John Wiley and Sons. Pp. 279-301.

Fuller, Wayne. 1987. Measurement Error Models. New York: John Wiley & Sons, Inc.

Reeve, Bryce B. and Louise C. Masse. 2004. "Item Response Theory Modeling for Questionnaire Evaluation." Chapter 13 in Methods for Testing and Evaluating Survey Questionnaires. Stanley Presser, et al., eds. Wiley. Pp. 247-274.

April 5 – Measurement Error: The Interviewer

Roller and Lavrakas, Chapter 3 – In Depth Interviews

Biemer and Lyberg, Chapter 5

Hansen, M.H., W.N. Hurwitz, and M.A. Bershad, Measurement Errors in Censuses and Surveys, *Bulletin of the International Statistical Institute*, 32nd Session, 1960, Vol. 38, Part 2, pp.359-374.

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O'Muircheartaigh, C. and P. Campanelli. 1998. "The relative impact of interviewer effects and sample design effects on survey precision," *Journal Of The Royal Statistical Society Series A-Statistics In Society* , 161: 63-77, Part 1.

Suchman, L. and B. Jordan. 1990. "Interactional Troubles in Face-to-Face Survey Interviews" *Journal of the American Statistical Association*, Vol. 85, No. 409 (Mar., 1990), pp. 232- 241

Recommended Readings

Belli, R.F., P.S. Weiss, and J.M. Lepkowski. 1999. "Dynamics of survey interviewing and the quality of survey reports: Age comparisons." Pp. 303-325 in Cognition, aging, and self-reports, edited by N. E. P. Schwarz, Denise C. (Ed); et al. Hove, England: Psychology Press/Erlbaum (UK) Taylor & Francis.

Cannell, C. Miller, P. and Oksenberg, L. (1981), "Research on Interviewing Techniques," in S. Leinhardt (ed.), Sociological Methodology 1981, pp. 389-437, San Francisco: Jossey-Bass.

Fellegi, I.P. 1964. "Response Variance and Its Estimation," Journal of the American Statistical. Association. 59: 1016-1041.

Groves, Chapter 8

Kahn, R. and Cannell, C. Dynamics of Interviewing, New York: John Wiley and Sons.

Kane, E.; and Macaulay, L. , (1993), "Interviewer Gender and Gender Attitudes," Public Opinion Quarterly, 57, pp. 1-28.

Kish, L. (1962), "Studies of Interviewer Variance for Attitudinal Variables." Journal of the American Statistical Association, 57, pp. 92-115.

Mangione, T., Fowler, J., and Lewis, T. (2002) . "Question Characteristics and Interviewer Effects." Journal of Official Statistics. 8: 293-307.

O'Muircheartaigh, C. (1977), "Response Errors," in C. O'Muircheartaigh and C. Payne, The Analysis of Survey Data, Vol. 2, Model Fitting. New York:John Wiley and Sons.
Schaeffer, N. C., Dykema, J., & Maynard, D. W. (2010). Interviewers and Interviewing. In P. V. Marsden & J. D. Wright (Eds.), Handbook of Survey Research (pp. 437-470). Bingley, UK: Emerald Group Publishing.
Schuman, H.; and Converse, J. , (1971), "The Effects of Black and White Interviewers on Black Responses in 1968," Public Opinion Quarterly, 35, pp. 44-68.
West, B. T., & Olson, K. (2010). How Much of Interviewer Variance is Really Nonresponse Error Variance? Public Opinion Quarterly, 74(5), 1004-1026. doi:10.1093/poq/nfq061

April 12 – Measurement Error: The Respondent

Fuchs, Marek. (2005). "Children and Adolescents as Respondents. Experiments on Question Order, Response Order, Scale Effects and the Effect of Numeric Values Associated with Response Options." *Journal of Official Statistics*. 21(4): 701-725.
Holbrook, A. L., Anand, S., Johnson, T. P., Cho, Y. I., Shavitt, S., Chávez, N., & Weiner, S. (2014). Response Heaping in Interviewer-Administered Surveys: Is It Really a Form of Satisficing? *Public Opinion Quarterly, 78*(3), 591-633. doi:10.1093/poq/nfu017
Johnson, T., O'Rourke, D., Chavez, N., Sudman, S., Warnecke, R., Lacey, L., and Horm, J. "Social Cognition and Responses to Survey Questions Among Culturally Diverse Populations." Chapter 4 in *Survey Measurement and Process Quality.* Edited by L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. New York: John Wiley and Sons. Pp. 87-114.
Kleiner, B., Lipps, O., & Ferrez, E. (2015). Language Ability and Motivation Among Foreigners in Survey Responding. *Journal of Survey Statistics and Methodology, 3*(3), 339-360. doi:10.1093/jssam/smv015
Knauper, B., N. Schwarz, D. Park, and A. Fritsch. 2007. "The Perils of Interpreting Age Differences in Attitude Reports: Question Order Effects Decrease with Age." *Journal of Official Statistics.* 23(4): 515-528.
Stern, M. J., Dillman, D. A., & Smyth, J. D. (2007). Visual Design, Order Effects and Respondent Characteristics in a Self-Administered Survey. *Survey Research Methods, 1*(3), 121-138.

Recommended Readings:

Black, D., S. Sanders, and L. Taylor. 2003. "Measurement of Higher Education in the Census and Current Population Survey." Journal of the American Statistical Association 98:545-554.
Conrad, F. G.; and Schober, M. F. , (2000) Clarifying question meaning in a household telephone survey, Public Opinion Quarterly, 64, pp. 1-28.
de Leeuw, Edith D. 1992. Data Quality in Mail, Telephone and Face-to-Face Surveys. Amsterdam: T.T. Publikaties.
Knauper, B.. 1999. "The Impact of Age and Education on Response Order Effects in Attitude Measurement." Public Opinion Quarterly 63:347-370.
Krosnick, J. A. and S.Narayan. 1996. "Education Moderates Some Response Effects in Attitude Measurement." Public Opinion Quarterly 60:58-89.
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Lessler, J.T., and B.H. Forsyth. 1996. "A Coding System for Appraising Questionnaires." Pp. 259-291 in Answering Questions: Methodology for Determining Cognitive and Communicative Processes in Survey Research, edited by Norbert Schwarz and Seymour Sudman. San Francisco: Jossey-Bass.
Rodgers, W.L. and Herzog, A.R. (1992). Collecting data about the oldest old: Problems and procedures. Pp. 135-156 in Richard M. Suzman, David P. Willis, and Kenneth G. Manton (eds.), The Oldest Old. New York: Oxford University Press.

April 19 – Mini-Proposal #3 Discussion (Measurement Error)
Students will post the drafts of their mini-proposals on Blackboard by 6:00 PM on April 18.

April 26 – Processing Errors; Mini-Proposal #3 due

Biemer and Lyberg, Chapter 7, pp. 215-257.

Alexander, J. Trent, Michael Davern and Betsey Stevenson. (2010). Review – Inaccurate Age and Sex Data in the Census PUMS Files: Evidence and Implications. *Public Opinion Quarterly.* 74(3): 551-569.

Granquist, L. and Kovar, J.G. 1997. "Editing of Survey Data: How Much is Enough?" Chapter 18 in *Survey Measurement and Process Quality.* Edited by L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. New York: John Wiley and Sons. Pp. 415-435.

Reiter, J. P. (2012), "Statistical approaches to protecting confidentiality for microdata and their effects on the quality of statistical inferences," *Public Opinion Quarterly*. 76(1): 163-181.

Vardigan, Mary B. and Peter Granda. (2010). "Chapter 23: Archiving, Documentation, and Dissemination." *Handbook of Survey Research, Second Edition.* Emerald Group Publishing Limited. Pp. 707-729.

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Fellegi, I. P. and Holt, D. (1976), "A Systematic Approach to Automatic Edit and Imputation," Journal of the American Statistical Association, 71, 17-35.

Jans, Matt, Robyn Sirkis and David Morgan. (2013). "Managing Data Quality Indicators with Paradata Based Statistical Quality Control Tools: The Keys to Survey Performance." Improving Surveys with Paradata: Analytic uses of Process Information. Frauke Kreuter, ed. Hoboken: John Wiley and Sons. Chapter 9, pp. 191-229.

Mohler, Peter Ph. And Rolf Uher. 2003. "Documenting Comparative Surveys for Secondary Analysis." Chapter 21 in Cross-Cultural Survey Methods. New York: John Wiley and Sons. Pp. 311-327.

Morganstein, D. and Marker, D.A. 1997. "Continuous Quality Improvement in Statistical Agencies." Chapter 21 in Survey Measurement and Process Quality. Edited by L. Lyberg, P. Biemer, M. Collins, E. de Leeuw, C. Dippo, N. Schwarz, and D. Trewin. New York: John Wiley and Sons. Pp. 475-500.