Teaching Statement for Brady T. West

Teaching and mentoring are very important parts of my position as a Research Associate Professor at the Survey Research Center (SRC) within the Institute for Social Research (ISR). My position is somewhat unique within the research track, in that I regularly teach semester-length graduate courses in survey methodology and applied statistics to students pursuing Masters degrees or PhDs in the Michigan Program in Survey Methodology (MPSM, recently renamed the Michigan Program in Survey and Data Science), the Joint Program in Survey Methodology (JPSM), and other departments on campus. I also teach workshops on a yearly basis to students, faculty, and research staff from all over the world.

I take great pride in my ability to teach essential principles in applied statistics and survey methodology using clear and straightforward pedagogical techniques. My teaching style (and my general philosophy about statistics and survey methodology) generally emulates the training that I received from several distinguished statisticians who have had a tremendous impact on my career in survey methodology and applied statistics, especially Julian Faraway, Ed Rothman, Fred Bookstein, Bob Groves, Mick Couper, Steve Heeringa, and Jim Lepkowski. In short, these mentors convinced me that the best way to learn essential principles in this area is via real-world examples, applications, and hands-on computational exercises that are well-grounded in statistical and methodological theory. These mentors also instilled in me a true appreciation for the importance of clear communication, whether it be written or oral, which is essential for survey methodologists to succeed in their inevitably inter-disciplinary careers. I am indebted to these individuals and the others who have trained me for their teaching and guidance.

The objective of this teaching statement is to summarize the teaching and mentoring activities that I have been engaged in since I was promoted to Research Associate Professor in 2016. This statement will show that I have continued to be extremely active teaching full-semester, for-credit courses for MPSM and JPSM, in addition to teaching summer courses as part of the SRC's Summer Institute in Survey Research Techniques (SI) and mentoring numerous graduate students and junior faculty via collaborative research projects. I have also introduced independent readings courses on the use of auxiliary variables in survey estimation and responsive and adaptive design for selected PhD students. Each of the students enrolled in these courses has praised the quality of the one-on-one sessions with me that these courses facilitated. I am proud of the fact that all of the students in these independent readings courses have used their exchanges with me to develop sound proposals for their comprehensive exams. I provide summaries of the content covered in each of the courses that I have taught and the excellent feedback that I've received from my students below. The variety of courses that I have taught reflects my broad spectrum of research interests and my ability to speak multiple languages in survey methodology and applied statistics.

I truly value my ability to be an effective teacher, and I spend a great deal of time and effort working on this craft. Prior to the COVID-19 pandemic, I continued to make several trips to the University of Maryland-College Park for joint MPSM/JPSM classes to meet students face-to-face. I strive to give students detailed feedback on their work, whether it be statistical modeling or construction of research papers. I demand high-quality written work and I give students extensive and detailed feedback on their

grammar and presentation (in addition to technical content) in written papers. English is a second language for many MPSM students and I want these students to leave our program with an ability to write clearly, regardless of the subject matter. Since the onset of the COVID-19 pandemic, I have adapted my example-driven teaching style to the Zoom platform, frequently sharing examples of performing analyses using statistical software from my screen and keeping students engaged with in-class questions and exercises. I have also "flipped" multiple classes to a format involving pre-recorded lectures and live weekly discussion / demonstration sessions for clarification of course content. Students have generally found this format to be quite valuable. Maintaining a healthy teaching-research balance has been extremely difficult during this challenging time, but I can say with certainty that I have done my best. I also strive to continue learning from my experiences teaching these courses so that future offerings will continue to represent improvements over previous offerings.

In the remainder of this teaching statement, I summarize my graduate program teaching experiences, my mentorship of students and junior faculty affiliated with our program, and the professional training that I have offered outside of our program since the time of my promotion in 2016.

Graduate Program Teaching. Summaries of the content and evaluations for the aforementioned graduate courses that I have taught for MPSM/JPSM/SI since mid-2016 appear below. "Median Ratings" correspond to the median level of student agreement with the statement "Brady was an excellent teacher" (where 5 = strongly agree and 1 = strongly disagree).

- **Applications of Statistical Modeling.** Fall Terms 2016-2018; 2018 with Yajuan Si. This is a course that offers conceptual and practical training in fitting multilevel models, longitudinal data analysis, structural equation modeling, latent class analysis, and building classification and regression trees.
  - **Median Ratings (2016-2018): 4.75 / 5.0; 5.0 / 5.0; 5.0 / 5.0**
  - **Example Student Comments:** "Brady is a very good instructor. He presents the material very clearly. He is also good at addressing student questions." (2016) "Brady is the best professor I've ever had throughout my education. Learning advanced statistics is scary … but he has made it easy with the way he structures his lectures and takes questions. I would recommend anyone to take a course with him." (2017)
- **Applied Sampling.** Winter Terms 2017-2020; 2018-2020 with Yajuan Si. This is a course that provides instruction in the principles and practice of designing complex probability samples.
  - **Median Ratings (2017-2020): 5.0 / 5.0; 4.67 / 5.0; 5.0 / 5.0; 4.8 / 5.0**
  - **Example Student Comments:** "It is hard to come by an instructor like Brady--seeing this kind of dedication on a graduate level and knowing that your instructor wants you to learn is a rarity. What I appreciated the most--being from a different department and having taken other methods courses in the past--was the pedagogy behind this course." (2017) "I really, really enjoyed this class. It was very interesting material and was well presented." (2019)
- **Doctoral Seminar.** Fall/Winter Terms 2018-2019 (with Stanley Presser), 2019-2020 (with Katharine Abraham), and 2020-2021 (with Katharine Abraham). This is a course that teaches first- and second-year PhD students in MPSM and JPSM how to develop original research proposals.
  - **Median Ratings (2018-2020): 5.0 / 5.0; 5.0 / 5.0; 5.0 / 5.0**

- o **Example Student Comments:** "The classroom climate is constructive and friendly. I felt comfortable receiving comments and making proposal improvements without getting into defensive positions. Comments from the two instructors are always to-the-point." (2020)
- **Analysis of Complex Sample Survey Data (SI).** Summer 2016-2018; Summer 2020 with Yajuan Si. This is an eight-week summer course for both domestic and international students enrolled in the SI that uses lectures and labs based on my book *Applied Survey Data Analysis* (Heeringa et al., 2017) to train students in how to properly analyze data produced by complex sample surveys.
  - o **Median Ratings (2016-2018, 2020): 5.0 / 5.0; 5.0 / 5.0; 5.0 / 5.0; 5.0 / 5.0**
  - o **Example Student Comments:** "Brady is an excellent instructor who is willing to help students at any time." (2016) "Dr. West is a super survey methodologist who is very accommodating, understanding, and accessible." (2018) "Professor Brady's way of teaching has set a new example for me; I loved the way he taught." (2020)
- **Analysis of Complex Sample Survey Data (MPSM / JPSM).** Winter Term 2021 with Brian Kim. This is the semester-length version of this course for MPSM / JPSM students. (**Currently In Progress.**)

My ratings and evaluations in these recent courses have been uniformly excellent. I have also accepted constructive feedback from students on more effective ways to deliver course content (e.g., the aforementioned "flipped" format). I note that I have provided a large amount of "instructional mentorship" to Dr. Yajuan Si, a Research Assistant Professor in our program who did not have a great deal of teaching experience when she joined our program and has since shadowed me in three courses. Yajuan has now gained the experience and confidence to take over teaching of the Applications of Statistical Modeling course that I started in 2014. I also note that I truly love teaching our doctoral seminar, where I work with new PhD students to develop research proposals from scratch. This was one of my favorite courses as a student and I value the opportunity to mentor our first- and second-year PhD students in the same way that I was mentored when I was learning how to develop research ideas.

Mentorship of Doctoral Students. To date, I have served on the dissertation committees of **14 PhD students**, eight of whom have successfully defended their dissertations (defense dates in parentheses):

- **Hanzhi Zhou** from MPSM (April 4, 2014) is currently a statistician at Mathematica Policy Research;
- **Elizabeth Watts** from Health Behavior and Health Education (June 12, 2014) is currently a research scientist at NORC at the University of Chicago;
- **Chris Antoun** from MPSM (July 21, 2015) is currently a Research Assistant Professor at JPSM;
- **Chi-Mei Liu** from Pharmacy (January 13, 2016) is currently a research project manager at Kaiser Permanente;
- **Felicitas Mittereder** from MPSM (December 5, 2018), whose committee I chaired, is currently a research scientist at Facebook;
- **Sharan Sharma** from MPSM (December 19, 2018) is currently a Research Assistant Professor of Sociology and Survey Methodology at the University of Maryland;

- **Stephanie Coffey** from JPSM (September 1, 2020) is currently working as a mathematical statistician at the U.S. Census Bureau;
- **Traci Carson** from Epidemiology (November 12, 2020) is currently a research scientist at the University of Michigan School of Public Health;
- **Micha Fischer** from MPSM, <u>whose committee I am currently co-chairing</u>, is working on innovative approaches to optimizing multiple imputation of missing survey data;
- **Ali Rafei** from MPSM, who is working on innovative statistical approaches to making inference based on non-probability samples and big data, and has one paper with me under review;
- **Fernanda Alvarado-Leiton** from MPSM, who is working with me on methods to adjust for acquiescent response style bias in surveys;
- **Timothy Lycurgus** from Statistics, who is working on causal inference problems;
- **Adrianne Bradford** from JPSM, who is working on race-of-interviewer effects; and
- **Berhanu Gebremeskel** from Epidemiology, who will examine the associations between spatial heterogeneity of measles-containing vaccines (MCV) coverage and measles outbreaks and under-five mortality using national-level data from Ethiopia.

On each of these committees, I have carefully reviewed the written and technical work of the candidates to ensure that the resulting dissertations are of the highest quality. Serving on these committees (especially the two that I have chaired or co-chaired) has required regular one-on-one meetings with these students to discuss both technical approaches and writing. I strongly believe that all of these students have benefitted from their interactions with me in this regard. I strive to make myself available for these discussions despite my other commitments. More generally, I have also served on numerous comprehensive exam committees, where I have provided students with critical feedback on their written research proposals and evaluated their ability to move forward in the PhD program based on the research that they have proposed. I have also served as a grader on numerous PhD qualifying exams.

Mentorship of Masters and Undergraduate Students. I presently serve as the director of the Survey Methodology Program (SMP) within SRC, where my role is to coordinate research projects and research opportunities for faculty members and students. In this role, I help to assign our doctoral and masters students to research projects on a yearly basis, providing positions on my active projects when possible. Every semester, I directly supervise 5-7 graduate students on SMP research projects. I follow a model introduced by Jim Lepkowski, which involves engaging these students in weekly research meetings, constant email communication, and providing the students with opportunities to join peer-reviewed manuscripts (often as a first author) or present research at professional conferences. I strive to ensure that their experiences working with me maximize skill building opportunities and prepare them to eventually work as survey research professionals. I frequently encourage MPSM students to present research at the entirely student-run Michigan Student Symposium in Interdisciplinary Statistical Sciences (MSSISS, hosted annually at the University of Michigan-Ann Arbor by graduate students of the Statistics, Biostatistics, Survey Methodology, and Electrical Engineering and Computer Science departments), of which I have been the MPSM faculty advisor for the past nine years.

For the past eight years, I have also served as the faculty director of the JPSM Junior Fellows program. In this role, I define the goals and vision of this program, work with agencies and organizations in the Washington, D.C. area to define summer internship positions, evaluate and select talented undergraduate students from across the nation who are studying quantitative fields, present lectures and seminars to the selected fellows, and help to place the fellows in the internship positions. This program has unfortunately been postponed for the past two years due to the pandemic, but I will work hard to restart it as soon as possible. Nothing makes me happier than to see a junior fellow succeed in our field (one was recently selected for the MPSM PhD program). Finally, I have written nearly 50 letters of recommendation for my students to date.

Professional Training. I have also been heavily involved in providing mentoring via research workshops and seminars both nationally and internationally. Since my promotion in 2016, I have presented 41 workshops, seminars and short courses at local, national, and international venues, and also in an online format. Details can be found in the SHORT COURSES AND TUTORIALS section of my CV, and evaluations have been uniformly excellent. This commitment to professional training likely played a prominent role in my election as the Associate Education Chair (and subsequently the Education Chair) of the AAPOR Executive Council from 2016-2018. In this role, I developed short courses and webinars that would benefit the AAPOR membership and increase their technical expertise. I also recently partnered with Paul Allison at *Statistical Horizons* to develop a new three-day short course on the analysis of complex sample survey data that will launch in May 2021.

In 2018, I worked with two other University of Michigan faculty members (Brenda Gunderson and Kerby Shedden) and several graduate students in the U-M statistics department to develop a Coursera specialization entitled *Statistics with Python*, defined by three massive open online courses (MOOCs). This specialization was launched on December 11, 2018 and has since attracted nearly 130,000 learners both nationally and internationally. I continue to monitor the activities in this specialization on a weekly basis and introduce improvements as needed. The specialization currently has an aggregate rating of 4.6/5 on coursera.org, reflecting its quality and popularity. I am currently working with James Wagner and Jinseok Kim from SRC, along with Trent Buskirk from Bowling Green State University, to develop a second Coursera specialization entitled *Total Data Quality*. This specialization seeks to communicate many of the essential ideas from our NIH-funded training program on responsive survey design to a worldwide audience of quantitative researchers. This new specialization will launch in January 2022.

Finally, I am currently the director of the Scientific and Technical Core (STC) of the Population Dynamics and Health Program (PDHP) in the Population Studies Center (PSC) at ISR. This new program was funded by a P2C center grant from NIH. The STC aims to provide PSC researchers and affiliates with high-quality research support in the areas of statistical analysis, data science, and research methodology. I lead a team of three analysts and data scientists that regularly assists PSC researchers with their research designs, and I also help to invite leading worldwide experts on specialized research methodologies to present four-hour training workshops at ISR, sponsored by PDHP. These free workshops have proven to be immensely popular, regularly attracting between 50 and 100 participants, and we will soon begin the process of renewing this important center grant to continue the success of this program.