

2020 AERA Annual Meeting

EXTENDED PROFESSIONAL DEVELOPMENT COURSE DESCRIPTIONS

PDC01 Analyzing NAEP Assessment Data Using R

Instructors: Emmanuel Sikali, U.S. Department of Education; Ting Zhang, American Institutes for Research; Paul Dean Bailey, American Institutes for Research; Huade Huo, American Institutes for Research; Michael Lee, American Institutes for Research

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

This course will introduce the unique design features of National Assessment of Educational Progress (NAEP) to researchers and provide guidance in data analysis strategies that they require, including the selection and use of appropriate plausible values, sampling weights, and variance estimation procedures (i.e., jackknife and Taylor series approaches). The course will also provide participants with hands-on practice training in analyzing a public-use NAEP file using the R package EdSurvey, which was developed for analyzing national and international large-scale assessment data with complex psychometric and sampling designs. Participants will learn about data manipulation, exploration, and visualization; cross-tabulation and plausible value means; linear regression and logistic regression; achievement levels, percentiles, and gap analysis. The knowledge and analytic approach to be learned from this course can be applied to analyzing NAEP restricted data files and other large-scale data with plausible values. This course is designed for individuals in government, universities, the private sector, and nonprofit organizations who are interested in learning how to analyze large-scale assessment data, especially NAEP or NAEP-like data. Participants should have at least basic knowledge of R software (e.g., have taken an entry-level training on R programming) as well as of statistical techniques including statistical inference and multiple regression. Having working knowledge of Item Response Theory and sampling theory is preferred. Participants need to bring a laptop preloaded with the latest version of the R software to participate in the hands-on portion.

PDC02 Exploring a Data-Informed Approach to Developing Students Social-Emotional Competencies and Mindsets

Instructors: Katie H. Buckley, Transforming Education; Rolf K. Blank, STEM K-12 Research; Richard Fournier, Transforming Education

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

The purpose of this course is to provide researchers, educators, and administrators with best practices in assessing and developing students' social-emotional learning (SEL) competencies to improve student outcomes. Participants will have the opportunity to explore various tools, including an interactive tool to choose frameworks to prioritize SEL competencies, guides for selecting appropriate SEL measures, and a resource that provides best practices for integrating SEL development into districts, schools and classrooms. During this course, we will start by discussing the research-backed rationale behind fostering student SEL and how a focus on SEL can be used to cultivate equitable conditions in school. Next, we will provide an overview of how to choose and use SEL measures through an equitable lens, including a discussion of the different frameworks to prioritize SEL competencies, the different use-cases for measuring student SEL, and how to interpret the data using a strength-based approach. In the final part of the course, we'll explore the SEL Integration Approach, which guides educators on how to integrate SEL into academic curriculum and daily classroom routines to improve the classroom environment and student outcomes.

PDC03 How to Write About Qualitative Research

Instructors: Marcus B. Weaver-Hightower, University of North Dakota

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

This course aims to help beginning qualitative researchers—whether they are graduate students writing a qualitative dissertation or those learning qualitative methods so they can do mixed methods research—learn some of the key expectations, practices, and conventions of writing traditional qualitative research. The course focuses on writing, perhaps the least discussed topic in qualitative methods texts and courses. Participants will learn about, discuss, and practice the following key qualitative writing skills: Writing to Show You Were There; Writing About and With Qualitative Data; Writing Valid Qualitative Findings, Assertions, and Conclusions; Writing About Qualitative Methods; and Basic Revision Strategies. Although course participants can be relative beginners, they should have basic familiarity with qualitative research methodology and practices. Participants are encouraged to bring a small writing sample (or small sample of data) for group critique and discussion. The course will end with an open question-and-answer roundtable to work on participants' particular challenges with writing.

PDC04 Introduction to Systematic Review and Meta-Analysis

Instructors: Amy L. Dent, University of California - Irvine; Terri D. Pigott, Loyola University Chicago; Joshua R. Polanin, American Institutes for Research; Joseph Taylor, UCCS

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

This one-day course will introduce the basics of systematic review and meta-analysis. Topics covered include developing a research question, searching the literature, evaluating and coding studies, conducting a meta-analysis, and interpreting results for various stakeholders. Participants are encouraged to bring an idea for a systematic review to the course, with time reserved for discussion about it with course instructors. Course activities will include lecture, hands-on exercises, small-group discussion, and individual consultation. The target audience includes those new to systematic review and meta-analysis as well as those currently conducting either type of project. Knowledge of basic descriptive statistics is assumed. Participants are required to bring a laptop computer.

PDC05 Multilevel Modeling With International Large-Scale Assessment Databases Using The HLM Software Program

Instructors: Francis Howard Lim Huang, University of Missouri; Amy H. Rathbun, American Institutes for Research; Sabine Meinck, International Association for the Evaluation of Educational Achievement; Sakiko Ikoma, American Institutes for Research; Bitnara Jasmine Park, American Institutes for Research; Yuan Zhang, American Institutes for Research

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

This course will teach participants how to conduct multilevel modeling (MLM) with data from international large-scale assessments (ILSAs) such as TIMSS, PIRLS, and PISA. The content of the course will include an overview of the ILSAs and presentations on the design of these studies and implications for MLM analysis. Participants will learn how to specify two-level models using the HLM software program and also learn about model comparison, centering decisions and their consequences, and available resources for doing three-level models. Time will be allotted for participants to work on practice exercises, with several instructors available to mentor and answer questions. Participants should have a solid understanding of OLS regression and a basic understanding of MLM. Prior experience using a statistical software program, such as Stata, R, or SPSS, is helpful. Prior knowledge about ILSAs or prior experience using the respective databases or HLM software is not required. To participate fully in the hands-on exercises, participants should bring their own laptops with HLM software (a free student version is available).

PDC06 Network Analysis of Qualitative Data: Relying on Freeware, Rigor, and Transparency for the Public Good

Instructors: Manuel S. Gonzalez Canche, University of Pennsylvania

Date: Thursday, April 16, 2020

Time: 9:00 a.m. - 5:00 p.m.

Fee: \$145

This course provides participants with an innovative tool to ease the sense-making process in qualitative analysis. Relying on Network Analysis and freeware, this course teaches participants how to generate roadmaps that detect structure emerging from qualitative content. This sense-making process can be applied to static and dynamic qualitative data. In the static version, the information provided by participants happens in one-to-one settings (e.g., individual interviews). With dynamic data, participants' responses are recorded in settings where they influence the responses or behaviors of a group and are influenced by the group as well (e.g., video analysis, focus groups). In both cases, the product is a map (or sociogram) that detects the most influential content (captured by codes) and the most influential actors (captured by participants' contributions). This map, in addition to easing the sense-making process, provides transparency to the findings and conclusions reached. Anyone who sees the map will be able to detect the most influential actors and codes. However, the resulting structure captured by the maps is just a tool; it does not replace the expertise and knowledge of qualitative researchers.

PDC07 Advanced Meta-Analysis

Instructors: Terri D. Pigott, Loyola University Chicago; Terri D. Pigott, Loyola University Chicago; Ryan Williams, American Institutes for Research; Ariel M. Aloe, University of Iowa; Tasha Beretvas, The University of Texas at Austin; Wim Van den Noortgate, KU Leuven

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This one-day course will introduce advanced methods in meta-analysis. Topics covered include the computation of effect sizes from complex research designs, models for handling multiple effect sizes per study (dependent effect sizes) and exploring heterogeneity, power analysis in meta-analysis, the use of meta-analysis structural equation modeling (MASEM), and an introduction to single-case experimental design meta-analysis. The statistical package R will be used to conduct the statistical techniques discussed. Participants are encouraged to bring their own research in progress to the course. The activities will include lecture, hands-on exercises, and individual consultation. This course is designed to follow the course, Introduction to Systematic Review and Meta-analysis given by the instructors in prior AERA Professional Development training sessions and at the 2020 Meeting (see AERA PDC04). The target audience consists of researchers with experience in systematic review and meta-analysis who are interested in learning advanced methods for meta-analysis. Knowledge of basic descriptive statistics, systematic review, and basic meta-analysis is assumed. Students are required to bring a laptop computer.

PDC08 Advancing Explanatory Power with Mixed Methods

Instructors: Elizabeth G. Creamer, Virginia Polytechnic Institute and State University

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This interactive course addresses the lack of examples of diverse ways to integrate qualitative and quantitative data during analysis to advance explanatory power. It is targeted to graduate students and early career researchers with an interest in mixed methods, as well as to instructional faculty teaching a course that includes or is dedicated to mixed methods. Learning goals for the course include ways to explore how multiple sources of data can be engaged dialectically to gain explanatory power and create a theoretical framework, particularly through visualization and case-based analysis. Participants completing the course will come away with ideas about possible ways to creatively integrate qualitative and quantitative data in their own project.

PDC09 Analyzing NAEP Process Data Using R

Instructors: Emmanuel Sikali, U.S. Department of Education; Ruhan Circi, American Institutes for Research; Fusun Sahin, American Institutes for Research; Xiaying Zheng, American Institutes for Research; Juanita Hicks, American Institutes for Research; Soo Youn Lee, American Institutes for Research; Tiago A. Calicó, American Institutes for Research

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This course will introduce the unique features of National Assessment of Educational Progress (NAEP) process data to researchers and provide guidance in data preparation and analysis to understand and make appropriate use of this new data type. The NAEP process data includes the recorded and time-stamped actions of the students with the test delivery system. The course will provide participants with hands-on practice training in analyzing synthetic NAEP process data files using the R open software. In this course, participants will be guided on how to convert simulated (synthetic) NAEP response process data in raw format (XML files) into the R open source software environment. Participants will learn how to extract/create new variables such as item response time and how to conduct analysis for their various research questions using differing modeling approaches, through instructors' demonstrations of data analyses and visualization. The course is designed for researchers in government, universities, the private sectors, and nonprofit organizations who are interested in learning how to analyze response process data. Participants should have at least basic knowledge of the R software as well as of statistical techniques including statistical inference and clustering. Participants need to bring a laptop preloaded with the R/RStudio. Detailed instructions will be sent to participants before the training.

PDC10 Empowerment Evaluation

Instructors: David M. Fetterman, Fetterman and Associates

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This course will highlight how empowerment evaluation produces measurable outcomes with case examples ranging from high tech companies such as Google and Hewlett-Packard to work in rural Arkansas and squatter settlements in South Africa. Employing lecture, activities, demonstration and discussion, the course will introduce participants to the theory, concepts, principles, and steps of empowerment evaluation as well as the technological tools to facilitate the approach. Empowerment evaluation builds program capacity and fosters program improvement. It teaches people to help themselves by learning how to evaluate their own programs. Key concepts include: a critical friend, cycles of reflection and action, and a community of learners. A dashboard is used to compare annual goals with quarterly progress.

PDC11 How to Get Published: Guidance from Emerging and Established Scholars

Instructors: Patricia A. Alexander, University of Maryland, College Park; Yuting Sun, University of Maryland, College Park

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This course will provide graduate students and early career faculty with critical information about how to publish. The course will begin with an overview of the nuts and bolts of academic publishing.

Following this, scholars will present detailed sessions that cover the entire publishing process—from conceptualizing studies to preparing well-crafted manuscripts targeted to relevant journals. More specifically, sessions led by top scholars will cover institutional and career fit, how to be a productive writer, finding equilibrium in academia, contemporary publishing topics and how to select appropriate journals, quality quantitative research, quality qualitative research, and ethical issues in publishing.

Question-and-answer sessions will follow each presentation to allow course participants to interact with the scholars about the topics presented. Further, at the end of the day there will be a final presentation that addresses any lingering questions and concerns. Each participant will be provided with materials, including handouts and work samples that elaborate the important points shared during the course.

PDC12 Teaching and Learning Qualitative Research Methods Principles Through Popular Film Clips

Instructors: Johnny Saldana, Arizona State University

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

This one-day course provides students and instructors of qualitative research courses pedagogical strategies for using popular film clips to teach and learn principles and methods of inquiry. Mediated instruction has a long-standing tradition in K–12 classrooms, and the power of “edutainment” in our visually oriented, digital, and performative culture should not be underestimated or dismissed by university professors for their advanced undergraduate and graduate-level classrooms. Popular film viewing offers novelty and engagement in traditional learning settings and holds the potential to vividly instruct as well as entertain.

Popular film clips can be used to (1) introduce qualitative research topics; (2) illustrate basic principles and techniques of inquiry; (3) generate classroom discussion and reflection; (4) clarify misunderstood concepts; (5) function as referential mnemonics; and (6) teach selected principles more effectively than traditional classroom pedagogy. Some examples of film scenes and their topics include *The Matrix* (ontology, epistemology, axiology); *Miss Evers' Boys* (research ethics); *Kinsey* (interviewing); *Fargo* (deductive reasoning); and *Experimenter* (theory).

At the conclusion of the course, participants will have (1) viewed over 30 film clips related to qualitative research methods principles; (2) participated in related learning activities (e.g., discussion, categorizing, assertion development, thematic analysis); (3) reviewed and discussed how selected learning strategies can precede and follow popular film clip viewing; (4) shared other film and media titles for recommended use with students; and (5) learned how to access related media and software for their own teaching resource development.

PDC13 What Would it Take to Change Your Inference? Quantifying the Discourse about Causal Inferences in the Social Sciences

Instructors: Kenneth Frank, Michigan State University

Date: Friday, April 17, 2020

Time: 8:00 a.m. - 4:00 p.m.

Fee: \$145

Statistical inferences are often challenged because of uncontrolled bias. There may be bias due to uncontrolled confounding variables or non-random selection into a sample. We will turn concerns about potential bias into questions about how much bias there must be to invalidate an inference. For example, we will transform challenges such as “But the inference of a treatment effect might not be valid because of pre-existing differences between the treatment groups” to questions such as “How much bias must there have been due to uncontrolled pre-existing differences to make the inference invalid?” By reframing challenges about bias in terms of specific quantities, this course will contribute to scientific discourse about uncertainty of causal inferences. In part I, we use Rubin’s causal model to interpret how much bias there must be to invalidate an inference in terms of replacing observed cases with counterfactual cases or cases from an unsampled population (e.g., Frank et al, 2013). In part II, we quantify the robustness of causal inferences in terms of correlations associated with unobserved variables or in unsampled populations (e.g., Frank 2000). Calculations will be presented using the app <http://konfound-it.com> with links to STATA and R modules. In part III, we extend to non-linear models, interaction effects, specific study designs (e.g., regression discontinuity), and thresholds for inferences. The format will be a mixture of presentation, individual exploration, and group work. Participants should be comfortable with the general linear model (e.g., multiple regression) and statistical inference.