INTRODUCTION

This journal self-study course is composed of papers from a 2019 Research Forum, Advancing Statistical Methods in Speech, Language, and Hearing Sciences. These selected articles provide advanced-level discussion about clinically relevant statistical methodologies to give audiologists a strong foundation from which to analyze and understand the statistical research they come across to decide when and how to apply it in practice. The articles examine frequential and Bayesian statistical methods as well as propensity scores and linear-mixed model analyses.

LEARNING OUTCOMES

You will be able to:

- Describe best practices in basic and more advanced inferential statistics that avoid errors and find true clinical significance
- Summarize the difference between frequential and Bayesian analyses as well as potential applications of each
- Explain how propensity score matching reduces selection bias for studies in which randomized control trials are not feasible
- Explain how linear-mixed model analysis improves statistical accuracy in cases of missing data

CONTENTS

(https://doi.org/10.1044/2018_JSLHR-S-ASTM-18-0239) ........................................... 9 pages

The Evolution of Statistical Methods in Speech, Language, and Hearing Sciences, by Jacob J. Oleson, Grant D. Brown, & Ryan McCreery
(https://doi.org/10.1044/2018_JSLHR-H-ASTM-18-0378) ........................................... 9 pages

Bayesian Applications in Auditory Research, by Garnett P. McMillan & John B. Cannon

Using Propensity Score Matching to Address Clinical Questions: The Impact of Remote Microphone Systems on Language Outcomes in Children Who Are Hard of Hearing, by Maura Curran, Elizabeth A. Walker, Patricia Roush, & Meredith Spratford
(https://doi.org/10.1044/2018_JSLHR-L-ASTM-18-0238) ........................................... 13 pages

Linear Mixed-Model Analysis to Examine Longitudinal Trajectories in Vocabulary Depth and Breadth in Children Who Are Hard of Hearing, by Elizabeth A. Walker, Alexandra Redfern, & Jacob J. Oleson
(https://doi.org/10.1044/2018_JSLHR-L-ASTM-18-0250) ........................................... 18 pages

ASHA Self-Study WEB3650
PROGRAM HISTORY and IMPORTANT INFORMATION

Articles originally published in ASHA scholarly journals

**Start date:** October 23, 2020
**End date:** October 23, 2023

To earn continuing education credit, you must complete and submit the learning assessment on or before **October 23, 2023**.

This course is offered for **0.75 ASHA CEUs** (Advanced level, Related area).