

# Beyond behavioral: What does the brain tell us about understanding speech in noise?

**Course Description:** This hour-long session will focus on current research using objective measures (evoked potentials) to improve our understanding of the one of the most common clinical problem in audiology: difficulty understanding speech in a background of noise. In particular, we will discuss why some background noises are more difficult than others and how that is represented in the auditory system. Applications to populations seen in the audiology clinic and our audiological test battery will be explored.

## Learning Outcomes

1. Identify the types of background noise, including both “energetic” and “informational” types of masking, and their effects on our ability to understand a target speaker in their presence.
2. Describe the basics of using auditory evoked potentials to assess speech understanding.
3. Summarize the effects of masking noise on evoked potentials in the normal auditory system.
4. Associate the potential relevance to assessment and management in audiology.

## Agenda

4:00 - 4:10: Introduction to speech understanding in noise: a behavioral perspective

4:10 – 4:25: Where in the auditory system/brain: What do AEPs tell us?

4:25 – 4:40: Review of evoked potential research using speech in background noise

4:40 - 4:50: What does this mean for audiology practice?

4:50 – 5:00: Questions, answers and wrap up

**Speaker:** Kathy Vander Werff, PhD, is an associate professor of audiology at Syracuse University. Dr. Vander Werff has been at Syracuse University since 2004 and her research interests include using evoked potential measures as tool to better understand the effects of hearing loss and central auditory problems on how the brain processes sound, particularly speech. Her research has been applied to infants, aging populations, and individuals with concussion/MTBI. Dr. Vander Werff teaches graduate courses in the AuD program in the Department of Communication Sciences and Disorders, is affiliated with the Interdisciplinary Neuroscience Program at SU, and has an adjunct appointment in the Department of Physical Medicine and Rehabilitation at Upstate Medical University in Syracuse.

### Disclosure:

Financial: Dr. Vander Werff was paid a speaker fee by the Vermont Speech Language Hearing Association (VSHA) for this presentation. Dr. Vander Werff receives a salary for her work at Syracuse University. She was awarded an internal grant for the research discussed in this presentation from the Marvin and Carol Schneller Fund (Syracuse University).  
Non-Financial: Dr. Vander Werff serves on the CSDCAS advisory committee for the Council of Academic Programs in Communication Sciences and Disorder (CAPCSD).