The Science and Engineering Division and National Association of Blind Students Joint STEM Zoom Conference Minutes for January 26, 2025

The National Federation of the Blind's Science and Engineering Division (SED) and the National Federation of the Blind's National Association of Blind Students (NABS) held a joint Zoom conference on Science Technology Engineering and Math (STEM) on Sunday, January 26, 2025, by Zoom.

Mp3 and mp4 recordings of this meeting, along with supplemental material provided by Dr. Currin, are available at

"[2025-01-26 SED - NABS STEM Seminar](https://drive.google.com/drive/folders/10fKXaP6RwfQMqcm3vEAiCnR5iZlegRff?usp=drive_link)".

To see past Science and Engineering documents, minutes, and recordings, go to

"<https://tinyurl.com/NFB-Science-Engineering>".

The meeting was called to order by Lauren Altman, president of NABS, at 8 PM Eastern Standard Time (EST).

# Introduction

NABS President, Lauren Altman (nabs.president@gmail.com), welcomed the audience and speakers to the annual joint conference between NABS and SED.

President Altman invited people to contact her if they had questions.

President Altman then introduced John Miller, president of SED, who will be the moderator for the evening.

SED president, John Miller (Johnmillerphd@hotmail.com), thanked the speakers for presenting at this event, and for NABS who is hosting this seminar.

President Miller is totally blind, and holds a Ph.D. in electrical Engineering (EE) and is employed in this field.

President Miller invited individuals in STEM to send him a note saying what field you are in and how you are doing. He will try to pair you with an individual in your field. Also send a copy of this note to systemicaccess@gmail.com) which is the email address of the SED mentorship program discussed below. He advised people to make a reservation for the summer NFB convention because rooms in the headquarters hotel can sell-out early.

Dr. Miller praised the Freedom Scientific Companion (FSCompanion) which is an AI product which can answer questions on JAWS and on Microsoft applications. This feature was released with JAWS 2025 and can be accessed by hitting the JAWS key + the space bar, and then hitting f1.

He invited people to join the SED. Links for joining NABS and SED can be found under the "Wrap up" heading towards the end of this document.

# A summary of the presentations follows.

## **Speaker:** Kevin Currin (8:10 PM)

**Title:** Data Analysis Using Rmarkdown, Including Tables And Chart Sonification

Dr. Currin has included the rmarkdown script file, the HTML report produced by the script, and a notes file with some info on where to find resources and his contact info at

"[Kevin Currin Notes](https://drive.google.com/drive/folders/10qGD48oD8wrDsOk3HjcIVgEh7NvmDAJF?usp=drive_link)".

**Abstract:** Many STEM careers require the generation and analysis of large numbers of tables, graphs, numerical results, and other types of data. Organizing all of these data types into interactive HTML-based reports can greatly improve the efficiency and accessibility of data analysis.

In summary, I hope this presentation will be useful to students and professionals who are looking for ways to increase the efficiency and accessibility of data analysis.

Dr. Currin said that the rmarkdown reports are available after running the Rscript on the command line or through Rstudio. A user can run rmarkdown either

on their local computer or on a remote server, such as a high-performance cluster or cloud system. When running on a remote server, a blind individual will need to copy the report to their local computer to view it.

**Speaker Introduction:** Dr.Kevin Currin is a Research Assistant Professor in the Department of Genetics at the University of North Carolina at Chapel Hill. He received a PhD in Bioinformatics and Computational Biology from the University of North Carolina in 2020. He uses computational approaches, such as statistical data analysis and computer programming, to study human genetics and epigenetics. Kevin also has an interest in data sonification and has been working to incorporate sonification into his research.

## **Speaker:** Ned Lindholm (8:35 PM)

**Title:** Adapting Experimental Chemistry using Secondary Methods

**Abstract:** Students in Laboratory Chemistry courses are taught to focus on the primary objective of the experiment, designed to illustrate a specific concept outlined in their lectures. However, all chemical reactions are complex systems where a multitude of natural phenomena play out. It is through these secondary effects used in conjunction with existing adaptive technologies, that I believe innovation in accessibility for blind students can be discovered in experimental chemistry.

Talking Points

Dr. Lindholm is a very practical experimenter.

Chemical labels have long formula-based names which people may find difficult to pronounce and keep track of. Dr. Lindholm uses the chemical abstract service number (CAS) number. Every chemical has a CAS number. According to copilot: the CAS Number for caffeine is 58-08-2.

Screen readers mispronounce a lot of stuff.

When you come to a formula, arrow through each symbol.

Every chemical starts with a capital letter. In a chemical formula, the number that follows a capital letter (which represents an element) indicates the number of atoms of that element in the compound. Consider H2O.

Practicing chemistry helps. Look for simple ways to do things.

Practice drawing chemicals through a pipet by using water.

Practice stirring and dissolving solids into a liquid by dissolving salt in water.

Learn to filter with a coffee filter.

Dr. Lindholm emphasized knowing your subject. It helps you understand a graph if you know what is represented. There is no substitute for background knowledge.

There is a good amount of chemistry in household products.

**Speaker Introduction:** Dr. Edwin “Ned” Lindholm earned his bachelor's degree in chemistry from North Dakota State University and his Ph D in Physical Chemistry from the University of Utah. His work experience includes technical research for NASA and Subject Matter expert Instruction for the Department of Defense. Since losing his vision, he has continued his career as an Adjunct Instructor in the Chemistry Department at Salt Lake Community College. He currently serves as 2nd Vice President of the Salt Lake Chapter and on the Board of Directors of the Utah State Affiliate of the National Federation of the Blind.

## **Speaker: Kennedy Stomberg** (systemicaccess@gmail.com) (9 PM)

**Title:** NFB Science and Engineering Division Systemic Access Mentorship Program

The group tries to meet once a month. The next meeting is on February 18, 2025, at 6 PM Pacific time.

<https://boisestate.zoom.us/j/96843988408>

[Apply to our mentoring program!](https://docs.google.com/forms/d/e/1FAIpQLSe4eCkoyHMzIZ6hBPdRvkXfLj8K8OaJ2ZP7DJJ9lGmjg1eKHQ/viewform)

[Apply to present at our Accessible STEM Outreach events!](https://docs.google.com/forms/d/e/1FAIpQLSeeuDSbvcYTK_jSsUoOvQ85CRiYxmgzSMj0lRQbSItq_M6thw/viewform)

# Closing Remarks: Lauren Altman and John Miller (9:05 PM)

Finally, we wish to acknowledge Nikhil Dadlani and Noah Carver as our NABS Zoom Hosts, and Kaleigh Brendle as our NABS Publicist.

# Wrap up.

If you wish to learn more about NABS, including how to become a member, go to:

"<https://www.nabslink.org/>".

If you wish to join the SED, go to:

"[Division Dues Form](https://nfb.org/civicrm/contribute/transact?reset=1&id=52)".

Dues for NABS and SED are $5 a year.

NFB divisions' fiscal years start on January 1 and end on December 31 of the same year.

Individuals may join the NABS and SED e-mail discussion groups at "[Email lists](https://nfbnet.org/)".

# Adjournment

The meeting ended at 9:10 PM EST.

About twenty-four people attended the meeting.

# Questions and Corrections

If there are any questions concerning the National Association of Blind Students, please contact Lauren Altman (nabs.president@gmail.com).

If there are any questions concerning the Science and Engineering Division, please contact John Miller (Phone: 858-774-9286, Johnmillerphd@hotmail.com).

If there are any corrections for the minutes, please contact Louis Maher (713-444-7838, ljmaher03@outlook.com).

Minutes submitted by Louis Maher