



International Alliance for  
Biological Standardization

## 10th Annual Statistics Workshop: Science & Statistics – Elevating CMC through Partnership

November 12-14, 2024  
IBBR, Rockville, USA

### Session I: Science & Statistics

Although often overlooked, statisticians play a key role in the practice of science. Generation of high-quality evidence requires study designs and analyses that align with the scientific questions of interest. Furthermore, coordinated development of study designs and analyses can result in more efficient studies that optimally address important sources of variation. Statisticians bring a unique skillset to this process, as they are trained to think skeptically, to interrogate assumptions, and to consider multiple sources of both variation and bias. Yet statisticians are often only involved at the end of this process, as Sir Ronald Fisher captured in his 1938 Presidential Address to the First Indian Statistical Congress, : "To consult the statistician after an experiment is finished is often merely to ask him to conduct a postmortem examination. He can perhaps say what the experiment died of." Forty years later, Prof. George Box in his Presidential Address to the 138th meeting of the American Statistical Association commented: "By invention of the concept of Experimental Design, Fisher promoted the statistician from a curator of dusty relics to a valued member of a scientific team, responsible for planning and taking part in the conduct of an investigation." Eighty years later, then ASA President Lisa LaVange echoed Fisher's sentiment in her 2018 presidential address when she decried the misuse of statistics in pharmaceutical science, saying "Statisticians to the rescue, please!".

This session will discuss some key statisticians who were also scientists, as well as the key role statisticians play as a part of a scientific team. The session will also include the perspective of scientists and engineers on how they partner with statisticians, as a catalyst for better science and engineering. We will discuss how to promote statisticians as scientific collaborators.

