

## **SIMIODE EXPO 2024 Keynote**

**Presenters:** Feryal Alayont - Grand Valley State University; Korana Burke - University of California, Davis; Erin Griesenauer - Eckerd College; Jeremy Shaw - Oregon State University-Cascades; and Rohit Thomas - University of California, Davis

**Title:** Ethical Reasoning: An Essential Component of Mathematical Modeling

**Abstract:** We argue that ethical reasoning is an essential component of applying mathematical modeling in solving real-life problems, in both academic and business settings. Our mathematical answers exist in the context of a larger system and have implications on the lives of others, the planet, and future generations. However, mathematics instruction often treats the mathematical work as if it exists in a vacuum devoid of context and omits careful consideration of stakeholders, validity of data, assumptions made, and limitations of the analysis. We describe downsides to our current approach of teaching mathematical modeling without enough attention to the inherent context and propose what an accurate mathematical modeling process should instead include. We discuss strategies our group and others are using to bring ethical reasoning back into the classroom.