



## The Essence of Science: Bridging the gap between science and science literacies

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Zentrum für Lehrer\*innenbildung  
Porzellangasse 4, 1090 Wien, Stiege 2, 3. Stock, Seminarraum 4

Die Veranstaltung wird im HYBRID Modus stattfinden. Zusätzlich zur Präsenz wird es eine Übertragung via Zoom geben: <https://univienne.zoom.us/j/65928326788?pwd=QlovdEFGbUlyVHorbnBiV0o3dFUxQT09>

Um Anmeldung bis Dienstag, 17.10.2023 wird gebeten: [christina.lang-mladek@univie.ac.at](mailto:christina.lang-mladek@univie.ac.at)

**Abstract:** Knowledge about scientific inquiry, nature of scientific knowledge, and scientific reasoning are essential knowledge domains for developing functional and multidimensional scientific literacy. Despite being the primary goal of science education, scientific literacy remains elusive to the general citizenry. Further, there remains mistrust and misunderstandings about science, including recommendations for sustainability and health that impact everyone. Teachers struggle to teach these concepts in an integrated manner that also targets science content knowledge and prepares learners to understand and evaluate scientific issues necessary to make informed decisions. In an effort to facilitate pedagogical knowledge and practices necessary to achieve scientific literacy, an overarching framework of what science is and what scientists do is needed. This presentation will address the construct of scientific literacy and offers a vision that integrates scientific inquiry, nature of science and scientific reasoning, collectively referred to as: Essence of Science (EoS). This framework looks to define and unify the aspects of EoS as a comprehensive construct which will result in better classroom application with the goal of educating a more scientific literate citizenry.

**Dr. Judith Sweeney Lederman** is Professor emeritus and former Director of Teacher Education in the Department of Mathematics and Science Education at Illinois Institute of Technology, Chicago. Prior to joining the IIT she was the Curator of Education at the Museum of Natural History and Planetarium in Rhode Island and Science Director of K-8 science education for ten Rhode Island school districts. Dr. Lederman was a physics and biology teacher in middle and secondary school, as well as bilingual elementary science teacher. She is internationally known for her work on the teaching, learning and assessing Scientific Inquiry and Nature of Science in both formal and informal settings. She is co-editor of the Handbook of Research on Science Education, for the Journal of Science Teacher Education, and author of a National Geographic elementary science textbook series. Dr. Lederman served on the Board of Directors of the National Association of Research in Science Teaching (NARST), the National Science Teachers Association (NSTA), the Association Science Teacher Educators (ASTE) and is past president of the Council for Elementary Science International (CESI). Dr. Lederman was awarded a Fulbright Fellow in South Africa, and the 2018 Svend Pederson Award for Research in Science Education, from Stockholm University. She was also the recipient of the 2019 NSTA Fellow Award for her large contributions to science education.