Interdisziplinäre Vortragsreihe Bildungsforschung

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Data At Your Fingertips: The Use of Citizen Science in a Variety of Different Undergraduate Classroom Contexts

With the expansion of big data, many research teams across a variety of disciplines are left with more data than they have time to analyze independently. Citizen science is an invaluable method that involves crowdsourcing aspects of the data analysis process, enabling research teams to solve problems involving large quantities of data more efficiently while simultaneously taking advantage of the inherently human talent for pattern recognition and anomaly detection.

Zooniverse (https://www.zooniverse.org/) is the world's largest online platform for citizen science. Since its inception in 2007, the Zooniverse has hosted over 350 projects with over 2 million registered volunteers globally. In this talk, I will discuss a new set of online science investigations intended for undergraduate non-science majors that utilize contemporary data from projects active on the Zooniverse platform. I will highlight two separate investigations that focus on the topics of transiting exoplanets and climate change, respectively. Results from pilot testing these investigations with over 2,300 students indicate that the implementation of these investigations leads to higher reported student self efficacy with regard to data literacy and the ability to make meaningful contributions to scientific research.
I will conclude with a discussion of a new citizen science-based research course being developed at Arizona State University for their online bachelor's degree program in Astronomical and Planetary Science. This course is being developed in partnership with Exoplanet Watch (https://exoplanets.nasa.gov/exoplanet-watch/about-exoplanet-watch/overview/), a citizen science project run by NASA's Jet Propulsion Laboratory. In this course, we emphasize the importance of repeated analysis as it pertains to exoplanet observational characteristics. Future space-based observations of exoplanets require ongoing maintenance of the exoplanets' ephemerides (e.g. predicted celestial position). Replication-driven research of the kind planned for this course will provide these updated ephemerides, making meaningful contributions to current exoplanet research as a result.