Announcing the Final Examination of Westley James for the degree of Doctor of Philosophy in Physics

Date: July 2, 2020
Time: 10:00 a.m.
Room: Online, zoom meeting:
link:
https://ucf.zoom.us/j/92683416708?pwd=SWlUK205bTVhcmpjQWloT01nV296QT09
password: 005333

Dissertation title: Investigating the inclusiveness of STEM courses and reducing barriers by applying the universal design for learning framework

Abstract:
Students with disabilities enroll in postsecondary STEM courses and degree programs, however little work has investigated whether STEM courses support students with disabilities and/or how STEM courses can be designed to support students with disabilities. We began addressing this gap by interviewing students with diagnoses characterized by variations in executive functions about their experiences in postsecondary STEM courses. Analysis of interviews was conducted through a lens (i.e., social relational perspective) which allows us to identify how course structures disable students from effective engagement with STEM courses. We find STEM courses present heightened barriers compared to non-STEM courses, with common barriers including a lack of resources or guidance for how to engage with course content, insufficient time on assessments, and a lack of access to organized course content and deadlines. Consequences of the barriers are that students are disabled from keeping pace in the courses and students experience more frequent episodes of severe anxiety. We also investigated the extent to which SCALE-UP physics courses and inquiry-based chemistry labs supported the variability of learners by using the Universal Design for Learning (UDL) framework. We used course observations to determine the enactment of UDL checkpoints, and how and why there are areas of high and low enactment along with differences across instructors and course types. We finally present the results of working with physics instructors and chemistry teaching assistants (TAs) to implement UDL aligned practices in their courses. Instructors chose to implement a variety of practices, and the extent and effectiveness of implementation varied due to differences in the consistency of implementation and whether implemented practices achieved intended goals. STEM courses are not designed to proactively support students with disabilities. Researchers and instructors should continue investigating the experiences of students with disabilities and utilize the UDL framework to design inclusive courses.

Outline of Studies:
Major: Physics

Educational Career:
M. S. University of Central Florida, USA 2018

B. S. University of Central Florida, USA 2015

Committee in Charge:
Dr. Jacquelyn J. Chini (chair)
Dr. Zhongzhou Chen
Dr. Eduardo Mucciolo
Dr. Eleazar Vasquez III (external committee member)

Approved for distribution by Dr. Jacquelyn J. Chini, Committee Chair, on June 17, 2020.

The public is welcome to attend remotely.