

The Mathematics Seminar Series

Presented by The Department of Mathematics

WHAT THE HYPERGEOMETRIC FUNCTION TAUGHT ME ABOUT CHEATING (AND VICE-VERSA)

Guest lecturer: **Matt Brenneman**
Embry-Riddle Aeronautical University

Date: 4/15/21

Time: 12:30-1:30 PM



<https://erau.zoom.us/j/99865536579>

ABSTRACT:

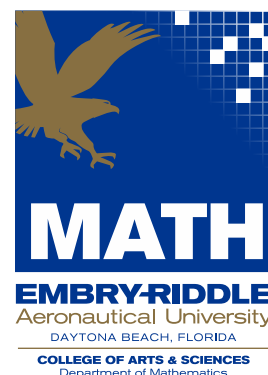
This talk will focus on a first principles approach for designing online tests to minimize cheating using probability theory. First, the context of this problem will be given (i.e. the type of assessments and cheating considered). Second, the two metrics for measuring cheating in this context, "integrity" and "reliability", will be defined. Third, quantitative formulas for both metrics will be derived from probability theory. The results will be used to offer some "best practices" guidelines for designing tests that are guaranteed (on average) to achieve specified levels of integrity and reliability.

One consequence of this analysis has been some interesting discoveries regarding the hypergeometric function, a notoriously difficult distribution to work with theoretically. Some conjectures will be posed for a special case of the hypergeometric distribution.

SEMINAR SERIES ORGANIZERS:

Dr. Stefan C. Mancas
Embry-Riddle Aeronautical University
Department of Mathematics
1 Aerospace Blvd.
Daytona Beach, FL 32114
Email: mancass@erau.edu
Phone: 386-226-7749

Dr. Mozghan "Nora" Entekhabi
Florida A&M University
Department of Mathematics
1601 S. Martin Luther King Jr., Blvd.
Tallahassee, FL 32307
E-mail: mozghan.entekhabi@famu.edu
Phone: 850-412-5230



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Matt Brenneman