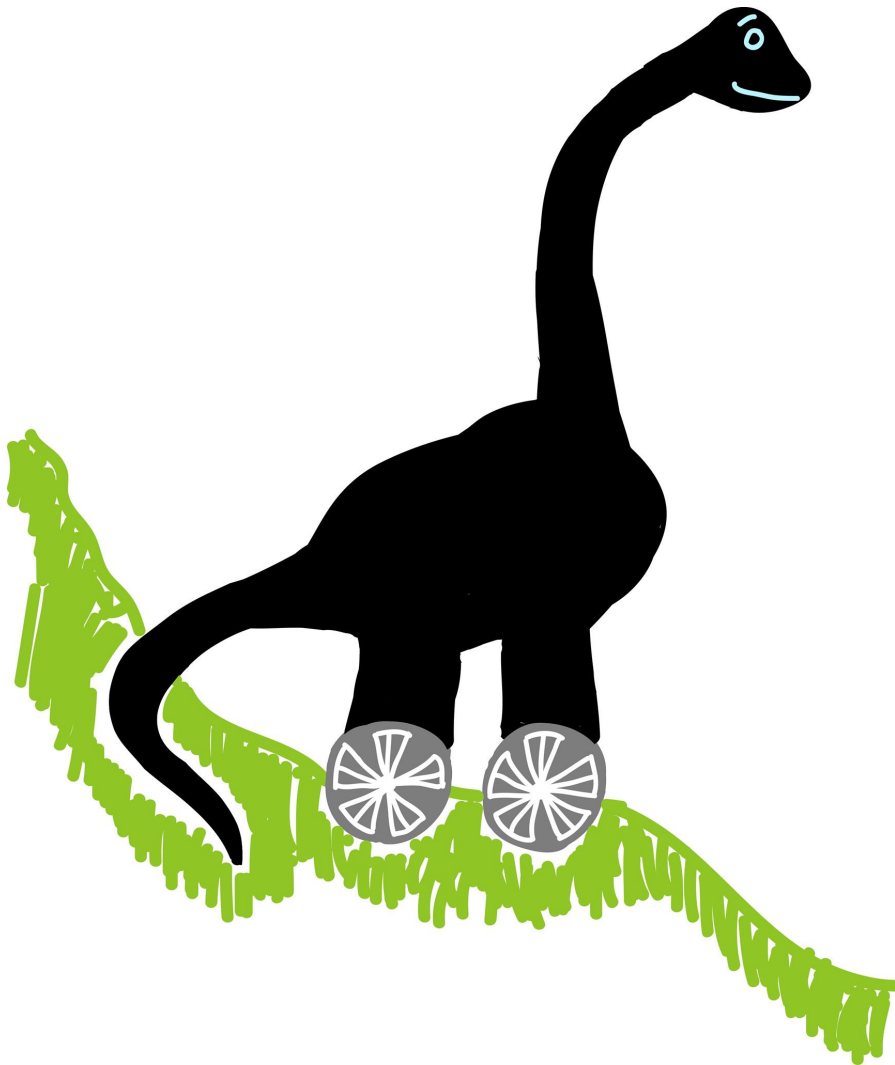


COLLOQUIUM

DEPARTMENT OF MATHEMATICS
FLORIDA GULF COAST UNIVERSITY



SPEAKER

Dr. Zahava Wilstein
Assistant Professor
Math & CS Department
Berry College, Mt. Berry, GA

TITLE

What do you call an herbivorous dinosaur sliding down a hill on spinners?

An introduction to the calculus of variations.

ABSTRACT

In 1696, Johann Bernoulli posed the following problem:

A particle acted upon only by gravity slides along a curve from point A to point B. What shape of curve allows the particle to reach point B in the shortest time?

Many famous mathematicians gave solutions to this problem and the methods of Jakob Bernoulli and Leonhard Euler provided the beginning of the calculus of variations. We will begin our encounter with this calculus by looking at a simple example concerning the shortest (minimum) distance between two points. By generalizing this process, we derive the Euler-Lagrange equation, whose solutions provide the candidates for optimization in many other types of problems. We will then answer the question in the title and see how the tools of the calculus of variations are used to treat Bernoulli's original problem.

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3:00 PM

Whitaker Hall 101