UNIVERSITY OF RHODE ISLAND

Department of Mathematics
and Applied Mathematical Sciences

Applied Mathematics and Scientific Computing Seminar

Location: Lippitt Hall 103
Time: Tuesday, February 11, 2025, 11:00am
(notice different time, day, and location)

Lagrange Polynomials and their Applications

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Abstract: Lagrange polynomials are a powerful tool for approximating functions over a set of discrete data points. By utilizing their basis functions, which are constructed to be 1 at one data point and 0 at all others, Lagrange polynomials of different degrees can be used to approximate functions over varying subintervals. This method proves beneficial when applied to the numerical solution of differential equations, as it provides a means to discretize the problem while maintaining accuracy. In this work, Lagrange polynomials are used to approximate target functions and the solution to a steady state ODE problem. MATLAB is used to compute and visualize the Lagrange polynomial interpolation for non-linear functions and showcase its powerful application to ordinary differential equations.