



Department of Mathematics and Natural Sciences

MAT 350

## ASSIGNMENT 4

FALL 2023

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You have to submit the assignment in a *zip* file containing the f90 and the input/output files using [this form](#). Submission Deadline: November 26, 2023

1. Solve the following BVP in  $[1, 2]$  using the Linear Finite Difference Method with  $h = 0.05$  and compare with the actual solution  $y = 2(x^4 - x^2)$ . [Your final output should contain 4 columns:  $x(i)$ ,  $y(i)$ , *actual solution*( $i$ ) and *error*( $i$ )]

$$x^2 \frac{d^2y}{dx^2} - 5x \frac{dy}{dx} + 8y = 0, \quad y(1) = 0, \quad y(2) = 24.$$