

## EML3041 Computational Methods

### What to Do In-Class Worksheet

Fall 2023

Week Three: September 4 – September 8

Bring a textbook and calculator with you every day

#### Chapters

- 02.01 Primer for Differentiation
- 02.02 Differentiation of Continuous Functions
- 02.03 Differentiation of Functions Given at Discrete Points

#### Sequence of Work in Class for Tuesday

1. Applications of finding numerical derivatives of a function.
2. Lecture on finding derivatives via polynomial interpolation.
3. Lecture on finding higher-order derivatives.
4. Lecture on error analysis, relation to Taylor series and Richardson's extrapolation formula

#### Sequence of Work in Class for Thursday

1. Do concept and free-response questions
2. Submit the free response question at the end of your class

#### Sequence of Work in Class for Friday (Class ends at 12:15PM)

1. Introduction to the solution of nonlinear equations

#### What if I Finish the Work for Day?

1. Solve the free response questions from all chapters 02.XX.
2. Solve the problem-set questions at the end of textbook chapters 02.02, 02.03.
3. Finish any left-over work from last two weeks.
- 4.



The QR code is the link to the textbook – use it for reference and solving more problems if finished. Alternatively, use short link if you wish: <https://bit.ly/3RMpaAe>