

CSE330 - Numerical Methods

ATONU ROY CHOWDHURY

Spring 2026

1 Class Timing

CSE330 — Numerical Methods, Section 20
Saturday and Thursday, 2:00 PM to 3:20 PM
Classroom: 09D-18C

Course webpage: <https://atonurc.github.io/teaching/bracu/cse330/spring26>

2 Course Outline

(Please head over to <https://cse.sds.bracu.ac.bd/course/view/CSE330>)

- Week 1 : Introduction. Overview of the whole course, Floating Point Arithmetic.
- Week 2 : Rounding error, loss of significance. Polynomial Interpolation. Vandermonde method.
- Week 3 : Lagrange form. Newton divided/difference form. Interpolation error.
- Week 4 : Chebyshev Nodes. Hermite Interpolation method. Differentiation: higher order finite difference.
- Week 5 : Rounding error, Richardson extrapolation. Nonlinear equations: Bisection method.
- Week 6 : Fixed Point method. Newton's method.
- Midterm Exam : April 04, 2026 (Saturday). Time: 11:00am - 1:00pm.
- Week 7 : Aitken acceleration. Quasi-Newton method (Secant form).
- Week 8 : Linear equations. Triangular forms. Gaussian Elimination method.
- Week 9 : LU decomposition method, pivoting. Least Square Approximation: norms, Orthogonality, Gram-Schmidt Process. Discrete least squares.
- Week 10 : QR-decomposition method, Newton-Cotes Formulae. Trapezium rule.
- Week 11 : Composite Newton-Cotes formulae. Simpson's rule. Exactness.
- Final Exam: May 17, 2026 (Sunday). Time: 11:00am — 1:00pm.

Go to this spreadsheet for updates of the classes: https://docs.google.com/spreadsheets/d/1cKXdrQMj_d1A7ez50fHt1VG_6aP_qW3wdW8pzIv_IE0/edit?usp=sharing

3 Resources

- Lecture notes by Anthony Yeates: <https://www.maths.dur.ac.uk/users/anthony.yeates/NOTES/na17.pdf>

4 Mark Distribution

- **Attendance:** 5% (Note: a minimum of 70% attendance is required to be eligible for the final examination.)
- **Quizzes:** 15% (Best 4 out of 6 quizzes will be considered. No makeup quiz will be taken.)
- **Assignments:** 10% (Best 3 out of 4 assignments will be taken into account. There will be no assignment submission after deadline.)
- **Midterm Examination:** 25%
- **Final Examination:** 25%
- **Lab:** 20%

5 General Policies

1. Makeup quizzes will not be offered. To account for emergencies, the best best $N - 2$ quizzes will be considered in the final calculation. Therefore, please don't request for makeup quizzes.
2. Plagiarism in any form is strictly prohibited. If you receive help from a friend, please acknowledge it. If you use ChatGPT or any other large language model (LLM), you must clearly mention it. Failure to do so will result in a grade of 0 in that assignment for the first offense and an **F** grade in the course for the next offense.
3. Using ChatGPT or similar tools to aid your understanding is allowed and even encouraged. However, copying and submitting AI-generated answers without understanding or attribution will be treated as academic misconduct. The same consequences as 2 will be applied.
4. Please make every effort to arrive on time. If you arrive late, kindly close the classroom door quietly behind you.
5. If you miss any classes due to illness or medical emergencies, please submit relevant documentation (e.g., medical certificates or prescriptions) over email as soon as possible.

6 Faculty Information

Atonu Roy Chowdhury (Initial: AROY)

Email: ext.atonu.roy@bracu.ac.bd

Desk: You'll mostly find me in MNS department, near 4R224 desk.

Consultation time: Sunday and Monday, 11:00 AM to 2:00 PM.

Please send an email before coming for consultation.