# Fall 2026

This is an independent-study course: there is no standing class meeting, but we check in **once a week, on Wednesdays**, to discuss the reading, work problems together, and review your notebook/code progress. Everything for a given week — lesson guides, lesson quizzes, and homework — is due by **11:59 PM on the Friday of that week**, the date in the "Due" column. Work through the reading and the guide *before* the Wednesday check-in, though: the point of the check-in is that you arrive having already wrestled with the material. Friday is simply when it all gets collected. The contents of this schedule are subject to change. The instructor will notify students of any changes. The two exams are taken in the **Testing Center** (open T/W/R, 4:00–10:00 PM) during the listed window. There is no final exam; the course concludes with **final project presentations** during the scheduled final exam period, with the project due beforehand. Homework is light and drawn from Burden & Faires (9th ed.). Projects are the heart of the course.

| Wk | Check-in | Sec. | Topic(s) | Homework (B&F 9e) | HW Due |
|---|---|---|---|---|---|
| 1 | Aug 26 W | – | Orientation; Introduction & the Julia Language; set up GitHub | | |
| | Sep 3 | – | Last day to add/drop | | |
| 2 | Sep 2 W | 1.1, 1.2 | Review of Calculus; Round-off Errors & Computer Arithmetic | 1.1: 3,5,9,11,15; 1.2: 1,5,11,13,15 | Sep 4 |
| | Sep 7 M | – | No obligations — Labor Day | | |
| 3 | Sep 9 W | 1.3, 1.4 | Algorithms & Convergence; Numerical Software | 1.3: 1,6,7,9,16,18 | Sep 11 |
| **Project 1 (Code Project: Root-Finding) assigned** | | | | | |
| 4 | Sep 16 W | 2.1–2.3 | Bisection Method; Fixed-Point Iteration; Newton's Method (start) | 2.1: 1,5,15,17; 2.2: 3,5,7,11,13,24 | Sep 18 |
| 5 | Sep 23 W | 2.3, 2.4 | Newton's & the Secant Method (cont.); Error Analysis for Iterative Methods — **Project 1 presentation** | 2.3: 5,7,9,15,18; 2.4: 1,3,7,10,14 | Sep 25 |
| 6 | Sep 30 W | 3.1, 3.3, 3.5 | Lagrange Interpolation; Divided Differences; Cubic Splines (start) | 3.1: 3,5,7,9,11; 3.3: 1,7,16,20 | Oct 2 |
| 7 | Oct 7 W | 3.5, 4.1 | Cubic Splines (cont.); Numerical Differentiation | 3.5: 3,5,7,15,19; 4.1: 1,3,5,24,28 | Oct 9 |
| **Project 2 (Code Project: your choice, Ch 3–6) assigned** | | | | | |
| 8 | Oct 14 W | 4.2, 4.3 | Richardson's Extrapolation; Elements of Numerical Integration — review for Exam 1 *(Block 1 ends today)* | 4.2: 1,5,9; 4.3: 1,5,15,24 | Oct 16 |
| **Exam 1 — Testing Center (T/W/R, 4–10 PM), Oct 20–22. Covers Ch 1–3.** | | | | | |
| 9 | Oct 21 W | 4.4, 4.7, 5.1 | Composite Numerical Integration; Gaussian Quadrature; Elementary Theory of IVPs | 4.4: 1,3,11,13; 4.7: 1,3,5,8; 5.1: 1,3,8 | Oct 23 |
| | Oct 26 M | – | No obligations — Fall Break | | |
| 10 | Oct 28 W | 5.2–5.4 | Euler's Method; Higher-Order Taylor Methods; Runge–Kutta Methods (start) | 5.2: 1,3,5,7,11; 5.3: 1,3 | Oct 30 |
| 11 | Nov 4 W | 5.4, 5.6, 6.1 | Runge–Kutta Methods (cont.); Multistep Methods; Linear Systems & Gaussian Elimination | 5.4: 1,13,17,27; 5.6: 1,5,11,16; 6.1: 3,5,11,15 | Nov 6 |

| Wk | Check-in | Sec. | Topic(s) | Homework (B&F 9e) | HW Due |
|---|---|---|---|---|---|
| **Final Project (IVP Parameter Optimization) assigned** | | | | | |
| 12 | Nov 11 W | 6.2, 6.5, 6.6 | Pivoting Strategies; Matrix Factorization (LU); Special Types of Matrices | 6.2: 9,11,13,17; 6.5: 3,5,7,9; 6.6: 1,5,9,11,15 | Nov 13 |
| 13 | Nov 18 W | 8.1–8.3 | Discrete Least Squares Approximation; Orthogonal Polynomials; Chebyshev Polynomials | 8.1: 3,5,14; 8.2: 1,7,9,14; 8.3: 1,3,7,8,10 | Nov 20 |
| **No check-in — Thanksgiving Break (Nov 25–27)** | | | | | |
| 14 | Dec 2 W | 8.5–8.6 | Trig. Approximation & the Discrete Fourier Transform; The Fast Fourier Transform — **Project 2 presentation**; review for Exam 2 | §8.5: 1,3,7,15; §8.6: 3,6,8,10 | Dec 4 |
| **Exam 2 — Testing Center (T/W/R, 4–10 PM), Dec 8–10. Covers Ch 4–8.** | | | | | |
| 15 | Dec 9 W | – | Reading Day — **Final Project due**; wrap-up / office hours | | |
| **Final Project Presentations — scheduled final exam period (Dec 10–15).** | | | | | |

*AI was used in the development and editing of this document.*