CSC 2262 Fall 2019 Syllabus

Instructor: Nate Brener
Office: Patrick Taylor 2341
Email: brener@csc.lsu.edu

Classrooms: **Lectures: 3:00-4:20 PM Thursdays, Bus Ed S Wing 1125**
Labs: 3:00-4:20 PM Tuesdays, Patrick Taylor 2326 (A-K), 2324 (L-Z)

Text: Elementary Numerical Analysis, Atkinson and Han, 2004

Grading System:

Exam 1	100 points
Exam 2	100 points
Final Exam	100 points
Programming Assignments	50 points
TOTAL	350 points

Letter Grade

A+ 344–350 points.	A 325–343 points.	A– 315–324 points
B+ 306–314 points.	B 290–305 points.	B– 280–289 points
C+ 271–279 points.	C 255–270 points.	C– 245–254 points
D+ 236–244 points.	D 220–235 points.	D– 210–219 points

Date for Exam 1: **Thursday, February 27, 6:00 - 8:00 PM, Room TBA**
Date for Exam 2: **Thursday, April 9, 6:00 - 8:00 PM, Room TBA**
Date for Final Exam: **Wednesday, May 6, 12:30 - 2:30 PM, Room TBA**

Policy on Make-up Exams

If you miss an exam, you can take a make-up exam if:

1) You have a valid excuse.
2) You provide written verification of the valid excuse, and
3) You email me regarding the missed exam no later than the day after the exam

The only valid excuses are a medical excuse, a family situation, or a University activity such as a field trip or team trip. No other excuses will be accepted.

Tuesday Hands-on Programming Classes (Labs)

On Tuesdays the class will meet in Patrick Taylor 2326 (A-K) and 2324 (L-Z) to do programming assignments based on the previous Thursday's lecture. TAs will be present during these Tuesday hands-on programming classes (labs). **These programming assignments will be due to be submitted electronically by midnight on the same day as the lab (i.e., by 12:00 AM Wednesday). Programs submitted after 12:00 AM Wednesday will not be accepted.**

Tentative List of Topics to be Covered:

1. Discussion of the use of numerical methods for real world problems in science, engineering and the humanities.
2. Basic foundation: round-off errors, floating point arithmetic, error propagation
3. Solving nonlinear equations: bisection method; fixed-point iteration; Newton's method; computing roots of polynomials
4. Interpolation and polynomial approximation: LaGrange polynomial; divided differences
5. Numerical integration(trapezoidal rule, Simpson's Rule), Numerical differentiation
6. Numerical linear algebra: Gaussian Elimination, LU-decomposition, Jacobi and Gauss-Seidel iterations, Convergence and Matrix Norms, Stability
7. Least squares approximation
8. Ordinary differential equations: (Euler's Method, Runge-Kutta Method)
9. Partial differential equations