Course Overview

This course is designed to prepare students who are interested to follow a program and/or a career in computational science and mathematical modeling. It covers the required background needed in those fields, such as linear algebra, solving ordinary and partial differential equation, interpolation and curve fitting, solving non-linear equations, optimization, matrices and eigenvalues, and Laplace and Fourier transform. It also prepares the students to implement these algorithms efficiently using computer or high-performance computing (HPC).

Enrollment Information

- General Knowledge of mathematics, linear algebra, differential equation.
- Mathematics 151
- A programming language or environment, such as C, FORTRAN, MATLAB, or Python.

Course Materials


Course Structure and Conduct

- The course is delivered with a series of lectures and discussions in the class.
- There would be several individual assignments.
- Students have to individually write a two-page proposal indicating the scope of their final project.
- Students have to present their findings and results, which follows SDSU’s SRS regulation and style to prepare student for SRS.
- Furthermore, students have to write a final report, which follows a short communication style of international journals. This would prepare the students to publish their results.

Course Assessment and Grading

- Homework Assignments 40%, Final Project Report 40%, Final Project Presentation 15%, Class Participation 5%

  - 100 - 92.0% = A, 91.9 - 90.0% = A-, 89.9 - 87.0% = B+, 86.9 - 82.0% = B, 81.9 - 80.0% = B-, 79.9 - 77.0% = C+, 76.9 - 72.0% = C, 71.9 - 70.0 = C-, 69.9 - 67.0% = D+, 66.9 - 62.0% = D, 61.9 - 60.0% = D-, below 60.0% = F.

Other Course Policies

- Other policies, changes to the current policy, or regulations are posted on the blackboard. It is student’s responsibility to follow the course updates on the blackboard.