Numerical Methods II
Spring, 2022
Professor: Leslie Greengard

Final Exam Preparation

The final exam will be closed book and will have 5 questions selected from the following topics:

- Using Richardson extrapolation to derive a high order method, estimate the convergence rate and/or improve the convergence of a solver. You need to know the basic idea - this will not involve a complicated scheme like the general Romberg integration in HW1.
- Setting up a two-point boundary value problem or a two-dimensional Poisson problem using the finite difference method and discussing the order of accuracy.
- Incorporating boundary conditions into discretizations of two-point boundary value problems or two-dimensional elliptic solvers
- Computing the local truncation error of simple initial value ODE schemes and discussing their stability.
- Discretization of diffusion or advection-diffusion problems in one dimension
- Von Neumann stability analysis