HPC Classes for fall 2017 and spring 2018
Math/ComS/CprE 424 & 525
Glenn Luecke

Purpose: The purpose of math 424 and 525 is to train students to be able to effectively use on-campus High Performance Computing (HPC) machines. Students without Fortran or C programming experience should take 424 and then 525. Students with Fortran or C programming experience should take only 525.

1. Introduction to High Performance Computing: Math/ComS/CprE 424, 3 credit. Offered fall semesters.

Description: This course is designed for students who have no Unix experience and no experience programming scientific applications in Fortran or C. Course Topics: Unix, serial programming of scientific applications for high performance (e.g. stride 1 array accesses, vectorization) and OpenMP for high performance shared memory parallelization. An oral and written semester project is required of each student. The semester project gives students the opportunity to apply concepts learned to their research interests.

Prerequisites: Basic knowledge of linear algebra or permission of the instructor.

Meeting times and room: Tuesdays and Thursdays from 11:00 to 1:00 in 449 Carver. 2 hours of lecture and 2 hours of lab each week.


Description: High Performance Computing (HPC) concepts and terminology, HPC machine architecture, how to use debugging and performance tools, advanced parallel programming with MPI, OpenMP and possibly OpenACC and/or CUDA. An oral and written semester project is required of each student. The semester project gives students the opportunity to apply concepts learned to their research interests.

Prerequisites: math 424, experience programming in Fortran or C, or permission of the instructor.

Meeting times and room: Tuesdays and Thursdays from 11:00 to 1:00 in 449 Carver. 2 hours of lecture and 2 hours of lab each week.