

COSC 420: High-Performance Computing

Course Syllabus

Lecturer: Dr. Joseph Anderson

Office: 128 Henson Hall

Office Hours: See course webpage

Email: jtanderson@salisbury.edu

Lecture: MWThF 9 - 9:50am, HS 143

Course Webpage: <http://faculty.salisbury.edu/~jtanderson/teaching/cosc420/fa21/index.html>

Textbook: *Introduction to High Performance Scientific Computing*, by Victor Eijkhout.

Further References:

- *Parallel Programming in MPI and OpenMP*, by Victor Eijkhout.
- *Programming Massively Parallel Processors: A Hands-on Approach*, by D.Kirk and W. Hwu, Morgan Kaufmann

Prerequisites: COSC 320, completed with a C or better.

Course Summary: The course will study principles, practices, and implementations of parallel and distributed computing. It covers three areas of high performance computing: modern computing architectures, algorithm design, and applications and programming. Through this course, students will not only learn fundamental concepts of high performance computing but also gain hands-on hardware and programming experience in this field.

Course Policies

Grading: The final grade will be calculated from two exams (15% each), the course final (20%), and assignments/projects (50%). A 100 point scale will be used on all graded work, however it is at the discretion of the lecturer to apply any curve to the grading scale (typically to the benefit of the students). Final grades are at the discretion of the lecturer. **NOTE: You must pass the final exam (D grade or better) in order to pass the course with a C.**

Students have one week from the day an assignment or exam is returned in class to raise questions about its grade. After one week has passed, you may still ask for technical clarification, but a grade change will not be accommodated. This is to ensure that students take timely responsibility for their work and to be confident in the grade they have received.

Assignments: Homework will be announced in class and posted on the course webpage. All written homework assignments are due at the start of class (or earlier if you know you will be unable to attend). Written homework may be accepted until 11:59pm on the day it is due, but at a 50% reduced score if it is turned in after class. All digital homework (programs, projects, etc.) will be due through the canvas system by 11:59pm on the due date. All other late homework will not be accepted and will receive a score of 0.

All programming projects must compile on the department Linux server, using standard **g++**. Compilation instructions must be provided with the project, along with a functional Makefile.

Online sources: Any submitted that is non-original (from online resources, previous students, etc.) will receive a grade of zero; if the use of external resources is needed, they should be properly cited, and adapted for the situation at hand. When in doubt, consult with the professor. If you work with a student on an assignment and, together, you arrive at a solution and both submit that solution, provide documentation to that effect. **Do not copy/paste others work and submit it as your own. You will receive no credit and face academic misconduct proceedings.**

Email: Email should primarily be used to set up a one-on-one meeting with me if my office hours conflict with your schedule. I strongly encourage you to ask questions about the syllabus and assignments as early as you can. For more in-depth discussions (such as guidance on assignments) please plan to meet in person. This policy is not designed to limit or inhibit communication; rather it is designed to promote student independence and meaningful interaction.

Furthermore, all email communication should happen over the official SU email system. I will not answer questions about the course from external email addresses (anything other than @salisbury.edu). Emails that do not use proper/professional email etiquette are not guaranteed a response.

The same policies apply to communication over the Zoom video conferencing software.

Office Hours: Specific dates and times for office hours are listed above. However, in general, if I am in my office with the door open, students should feel free to come in for discussion or questions.

Attendance: Class attendance is not required, however frequently missing class may impact your grade by up to 10%. Students are responsible for any material they miss during lecture without appropriate excuse. Office hours *will not* be used to re-iterate lecture material at length.

University Course-Related Policies: Salisbury University expects that all students have read and understand all of the Course-Related University Policies and Resources <https://www.salisbury.edu/administration/academic-affairs/course-related-policies-and-resources.aspx> and thereby agree to honor these standards. Important course-related policies and resources includes, but are not limited to:

- COVID related return to campus information
- Course registration add/drop/withdraw period
- Academic misconduct policy,
- University resources such as the SU Libraries, Disability Resource Center, Center for Student Achievement and University Writing Center.

The Henson School of Science considers academic misconduct as a serious offense and ALL incidences are subject to disciplinary action including, but not limited to, separation from the University.