

**Syllabus**  
**CSC 429 – Advanced High Performance Computing**  
**Spring 2025**

<b>Time &amp; Place</b>	Monday 9:05 A.M. - 12:05 P.M. Room 2N 115 Wednesday 9:05 A.M. - 11:00 A.M. Room 2N 115
<b>Instructor</b>	Dr. Feng Gu (Email: <a href="mailto:Feng.Gu@csi.cuny.edu">Feng.Gu@csi.cuny.edu</a> )
<b>Office Hours</b>	Monday 12:10 P.M. - 1:40 P.M. Wednesday 11:10 P.M. - 12:40 P.M. or by appointment
<b>Course Page</b>	<a href="http://www.cs.csi.cuny.edu/~gu/teaching/courses/csc429/csc429.html">http://www.cs.csi.cuny.edu/~gu/teaching/courses/csc429/csc429.html</a>
<b>Textbook</b>	Parallel Programming: Techniques and Applications using Networked Workstations and Parallel Computers (2nd ed.) by B. Wilkinson and M. Allen, Prentice Hall. ISBN-10: 0131405632 ; ISBN-13: 978-0131405639.
<b>Course Description</b>	<p>This course will introduce the foundations of parallel computing. The emphasis will be on algorithms that can be used on shared- and distributed-memory systems. The course will include both a theoretical component and a programming component. The topics covered will encompass on fundamentals of parallel computing, parallel computer architectures, performance, decomposition techniques for parallel algorithms, parallel programming models such as OpenMP and MPI models, analytical modeling of parallel algorithms. Classical parallel algorithms for matrix multiplication, sorting etc. and their implementation on parallel machines and performance analysis will be discussed.</p> <p>This is a 5-hour course, including 3 lecture hours and 2 laboratory hours per week.</p> <p>Prerequisites: CSC 326</p>
<b>Lab Assignments</b>	<p>The course will include six lab (programming) assignments. Students will be asked to write appropriate scripts, compile and run the programs in the environment of CSI's supercomputer, evaluate the running results or solutions, and design simple parallel programs.</p> <p>Labs will be assigned during class and also posted on the course Web-page: <a href="http://www.cs.csi.cuny.edu/~gu/teaching/courses/csc429/csc429.html">http://www.cs.csi.cuny.edu/~gu/teaching/courses/csc429/csc429.html</a>.</p> <p>Open lab schedules can be found at <a href="http://www.csi.cuny.edu/studenthelpdesk">www.csi.cuny.edu/studenthelpdesk</a>. You can also use computers in the library. The username and password to access the computers are your firstname.lastname (e.g., john.smith) and your date of birth using two digits for month, day, year without periods or spaces (e.g., 051880). If you have any questions about the computer access, please see Tony in 1L204.</p>

<b>Grading</b>	The course will include homework, lab assignments, and exams. The total grade is broken down as follows (subject to change): Homework – 20%, Lab Assignments – 20%, Exam I – 20%, Exam II – 20%, and Exam III – 20%.
<b>Last Date for Withdrawal</b>	Friday, February, 14, 2025, Last day to drop without the grade of "W", please double check all the drop dates (such as, with "W", without "W", tuition refund percentages) with the registrar's office.
<b>Others</b>	<p><b>Class participation</b> is essential to succeed in this course. If a student has five or more unexcused absences, the student will receive a 'WU' grade.</p> <p>All students are expected to do the homework and labs.</p> <p>Homework assignments and lab assignments are due at the start of class on their due date. If you won't be present in class on that due day, turn in the homework earlier to the instructor's office or by email.</p> <p><b>Late submission:</b> Homework or programming assignment submitted up to 1 week late will receive a 20% penalty. Homework or programming assignment submitted up to 2 weeks late will receive a 40% penalty. NO Homework or programming assignment will be accepted later than two weeks after due date.</p> <p>Due to limited class time, only a representative set of homework problems can be assigned. It is highly recommended that you do all the problems after each covered chapter.</p> <p><b>SCHOOL POLICY on Academic Integrity, Plagiarism, and Cheating -</b> Integrity is fundamental to the academic enterprise. It is violated by such acts as borrowing or purchasing assignments (including but not limited to term papers, essays, and reports) and other written assignments, using concealed notes or crib sheets during examinations, copying the work of others and submitting it as one's own, and misappropriating the knowledge of others. The sources from which one derives one's ideas, statements, terms, and data, including Internet sources, must be fully and specifically acknowledged in the appropriate form; failure to do so, intentionally or unintentionally, constitutes plagiarism. Violations of academic integrity may result in a lower grade or failure in a course and in disciplinary actions with penalties such as suspension or dismissal from the College.</p> <p>The work you turn in <b>MUST BE</b> your own personal work, composed and written by you. No plagiarism. MY Academic Integrity Policy – Copying someone else's computer code, even though you changed the variable names, is called plagiarism. All plagiarized work will be given a 0 to both the copier and the copyee.</p> <p>NO collaboration is allowed in the in-class exams (exams, and final exam).</p>
<b>Disclaimer</b>	This syllabus represents a general plan for the course and deviations from this plan may be necessary during the duration of the course.