Parallel Algorithms
CSC 726
Course Syllabus

Fall 2019

Instructor: Dr. Grey Ballard
Email: ballard@wfu.edu
Office: Manchester 234
Office Hours: M 2-3:30 and W 3-4:30, or by drop-in or appointment
Class: 9:30–10:45 TR, Manchester 17
Course Schedule: `http://users.wfu.edu/ballard/teaching/CSC726/`

1   Course Description

A thorough, current treatment of parallel processing and supercomputing. Modern high-performance commercial architectures, parallel programming, and various supercomputing applications are discussed. Hands-on experience is emphasized. Students are given access to a variety of machines.

2   Learning Outcomes

By the end of this course, students should be able to:

1. evaluate parallel algorithms using various parallel machine models,

2. design efficient parallel algorithms for a variety of problem areas,

3. analyze the data movement requirements of sequential and parallel algorithms,

4. read, critique, and present both classic and current research papers, and

5. write a research-style paper involving the design and/or analysis of parallel algorithms.

This class is a graduate class, and there will be high demands of classroom preparedness and participation. I will assume that all students have taken an

undergraduate algorithms course, an equivalent of CSC 222. Readings for each lecture will be posted on the course schedule, and they will come from a variety of sources.

3 Projects

The project can be done individually or in groups of 2 and should either be connecting your research to topics in this class or digesting a topic of interest related to this class. The main output of the project is a report (in ACM format: `https://www.acm.org/publications/proceedings-template`) and a presentation to the class at the end of the semester. Projects must include theoretical analysis of a parallel algorithm or a parallel implementation (or both). They may focus on parallel computing pedagogy, along with some artifact (such as a lesson plan, assignment scaffolding, and/or demonstration).

4 Assessment and Grading

Course grades are determined using the following weightings:

- 33% tests
- 33% programming assignments
- 34% project

Letter grades are assigned based on the following categorization:

A	93 or above	**C**	73–76.99
A$^-$	90–92.99	**C**$^-$	70–72.99
B$^+$	87–89.99	**D**$^+$	67–69.99
B	83–86.99	**D**	63–66.99
B$^-$	80–82.99	**D**$^-$	60–62.99
C$^+$	77–79.99	**F**	below 60

5 Contacting Me

In general, email is the best way to reach me, and I'm happy to take questions over email. The easiest way to find me in person is to stop by my office during office hours, though please feel free to drop by any time. If you want to be sure to find me then you can also email ahead to schedule a time; it helps to propose a few times that work for you so that I can choose one that works for me too.

6 Learning Assistance Center

If you have a disability that may require an accommodation for taking this course, then please contact the Learning Assistance Center (758-5929) within the first two weeks of the semester and bring it to my attention as appropriate.

7   Emergency Preparedness Policy

In the unlikely event of a major disruption of normal university activities (such as might result from a health emergency or other disaster), a course continuation contingency plan will be enacted in order to allow completion of the course. During this time, students should continue with the reading and other assignments listed on the syllabus and monitor email, Sakai, and the WFU website for information. If students have questions or are in doubt about how to proceed, they should contact the instructor by email if available, otherwise they should contact by phone.