CSCI 320 – Parallel Computing
Spring 2012

Instructor: Dr. Matthew Lang
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Class: MWF 2:35–3:45 in Reeves 212
Lab: TBD
Office Hours: R 9:30–12:30 (or by appointment)

Course Description

This is a course on distributed- and shared-memory parallel computing. We will examine parallel computing hardware architectures, common parallel computing APIs (*viz.* MPI, OpenMP, and pthreads) as well as current trends in parallel computing (*viz.* MapReduce and CUDA).

Course Objectives

At the completion of this course, you should be able to:

- understand the principles of computer networks.

- understand the principles of concurrent programming (*i.e.*, synchronization, maintaining consistency, issues of asynchrony, etc.).

- design and implement both distributed and shared memory concurrent programs.

Texts

"An Introduction to Parallel Programming" by Pacheco.

Schedule

Topic	Weeks
Parallel Hardware	1
Parallel Program Design	1
MPI	2
pthreads	2
OpenMP	2
Case studies	2
CUDA	2
MapReduce	1

Attendance Policy

This course does not have a rigid attendance policy in the sense that there is a rule stipulating the number of lectures that you must attend. However, please do not take this as a license to never show up to class; I expect you to be at each class meeting. Your attendance in lecture is important (beyond the usual reasons) in that homeworks, due dates, and readings will be assigned in person during lecture.

Academic Honest Policy

Please read and understand the College's Academic Honesty Policy (which you can find in the Student Handbook). I will let you know what materials are appropriate to use for reference for specific assignments when they are assigned.

Since collaboration with your colleagues will be an important part of your careers, collaboration is permitted on all graded assignments (with the exception of exams).

However, unless I state otherwise, you must turn in your own copy of each assignment *in your own writing*. If the ideas/algorithms expressed in an assignment are not entirely your own (*i.e.*, you worked with one of your colleagues), you must include a note stating who you worked with and the percent contributions of everyone who contributed to the work (including your contribution).

Though I encourage collaboration on assignments, you should not *rely* on each other; you are ultimately responsible for your learning and it is expected that the work that you present to me is a reflection of your understanding of the material.

Grading Policy

There are four components to your grade:

- **Homework:** Homework will be handed out periodically throughout the semester. **Weight: 20%**

- **Projects:** There will be a few substantial programming projects that you will be expected to complete. **Weight: 40%**

- **Tests:** There will be two midterm exams given during the semester. **Weight: 25%**

- **Final:** A cumulative final exam will be given on Monday May 3 at 8:30. **Weight: 15%**

Other policy matters:

- **Grading Scale:** I will use the standard scale with pluses and minuses to assign grades.

- **Late Homework:** I will accept homework beyond its due date with the penalty of 30% of the assignment's value per day. For example, if a homework is work 10 points and it is turned in two days late, the maximum amount of points one can receive is 4 points.

- **Exam Absence:** If you are going to miss an exam due to conflict, you must let me know beforehand. If you miss an exam due to some other circumstance, you must let me know as soon as possible and provide me with documentation. Valid circumstances include events like illness and family trauma. Invalid circumstances are events like hangovers and faulty alarm clocks.

- **Academic Accommodations:** Please let me know immediately if you have any disability that requires accommodation.

This syllabus is subject to change.