

CMSC 714 (Fall 2010)

Professor:

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Class URL: <http://www.cs.umd.edu/~hollings/cs714/f108> You are expected to check the class web page on a regular basis (at *least* twice weekly).

Catalog Description:

Selected topics in high-performance systems, including contemporary architectures, interconnection topologies, shared memory and message-passing systems, multi-threaded kernels, latency avoidance and hiding techniques, methods for data and workload partitioning, performance profiling, debugging.

Objective:

An understanding of the issues in the design high performance computers and software.

Prerequisites: CMSC412, CMSC411 (or equivalent classes)

Topics Covered (in approximately the order we will cover them):

- Introduction (1 week)
- Programming Models (3 weeks)
- Parallel Architectures (2 weeks)
- Interconnection Networks (1 week)
- Debugging & Instrumentation (2 weeks)
- Scheduling (1 week)
- Performance Tools (2 weeks)
- OS Issues (2 weeks)

Required Course Text:

[Papers from the reading list](#)

Term Projects:

The class will include term projects to investigate some aspect of parallel computing in more depth. The projects are intended to be “mini-research” projects. Part of the projects will be to define a specific project from sample ideas I supply you. The project will also include a written and oral reports to convey what you have learned.

Grading:

Classroom participation	5%
Programming Assignments	20%
Midterm	30%
Project	45%

The instructor reserves the right to fail, regardless of numeric score, students who do not submit a good faith attempt to complete all programming assignments.