EAS520 Syllabus
High Performance Scientific Computing
Spring 2013

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Office Hours:	MW 01:00 PM – 2:50 PM or by appointment.

Class Meetings: MW 4:30–5:45 PM. Larts 218.

Textbook: There will be no textbook for this course. Class materials will be based on the following sources:

1. Applied parallel computing course (MIT) by Alan Edelman.
2. High performance scientific computing course (NYU) by Marsha Berger and Andreas Klöckner.
3. Parallel MATLAB for multicore and multinode (SIAM book) by Jeremy Kepner.
4. MATLAB parallel computing toolbox documentation.
5. Tutorials scattered on the web.

Programming Language: We will mostly use MATLAB with parallel computing toolbox. However, students are free to use language/environment of their own choices: (e.g Fortran, C/C++, OpenMP, MPI, CUDA, OpenCL, etc). MATLAB 2011b is available in room 218 and is the same version installed in UMass Dartmouth Cluster.

Course Description and Objectives: This course is one of graduate level courses offered by the Engineering and Applied Science PhD program at UMass Dartmouth. We will be covering selected popular topics in scientific computing as case studies such as embarrassingly parallel problems, matrix vector multiplication, system of linear equations solver, domain decomposition, particle methods, and Poisson solver. In order to tackle those case studies, students will learn parallel and distributed computing techniques, partitioning and load balancing, shared and distributed memory models, and message passing.

Grades:
Your grades will based on 5 take home projects. Each project must be written in a report style. Report and codes must be uploaded to mycourses before deadlines.

Grade-O-meter:

Project 1:	20%	A	96-100%	C	72-75%
Project 2:	20%	A-	92-95%	C-	68-71%
Project 3:	20%	B+	88-91%	D+	64-67%
Project 4:	20%	B	84-87%	D	60-63%
Project 5:	20%	B-	80-83%	D-	56-59%
Total:	100%	C+	76-79%	F	0-55%

What's Valued: The things most valued in this class are:

- Engagement. This is evidenced by participating in class, asking questions, by reading ahead, by bringing questions to class.
- Honesty. This is a basic scientific attribute. You are encouraged to work together as a group and to discuss homework problems with other students. However, all codes and homework solutions must be written and submitted individually.
- Take pride in your work. Project solutions must be carefully written and codes must be neatly organized. Think about people who will read your codes. Putting extra comments in the codes will be helpful. Figures must be complete with labels, titles, etc.

Academic Dishonesty:
Please consult UMass Dartmouth Student Academic Integrity Policy:
`http://www.umassd.edu/studenthandbook/academicregs/ethicalstandards.cfm`

Attendance and Focus of Attention:
Attendance is mandatory, as is being on-task and participating in class activities. Three (3) missed classes without explanation may result in a grade of F without further discussion.