



University of Nevada, Reno

CS 791v: Topics: Parallel Computing Spring 2015

Last Modified: 1/19/2015

Instructor: Dr. Frederick C Harris, Jr.

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Office hours: T,R: 11:00am-11:50am

Class webpage: <http://www.cse.unr.edu/~fredh/class/791v/791v-S2015.php>

Instructor: Dr. Lee Barford

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Lectures:

T,R: 9:30am-10:45pm, SEM 201 (We may have to use MS 324 sometimes)

Labs:

none

Important Notes and Dates:

- **Final Exam:** Tuesday May 12 12:30-2:30pm
- **Holidays:** M Mar 16 – F Mar 20 (Spring Break),

Required Textbook:

- None

Supplemental Books:

- *CUDA by Example: An Introduction to General-Purpose GPU Programming*, by Jason Sanders and Edward Kandrot, Addison Wesley, 2011
- *Programming Massively Parallel Processors: A Hands-on Approach*, by David B. Kirk and Wen-mei W. Hwu, Morgan Kaufman, an Imprint of Elsevier, 2010.

Course Description:

Catalog:

(v) parallel computing, May be repeated for different topics.

Prerequisites:

Courses:

- CS 302 (Data Structures).

Topics:

- a good working knowledge of programming.
- a good working knowledge of threads or parallel programming.

Course Objective:

Students will demonstrate an understanding of concepts, algorithms, and design principles underlying parallel programming on the GPU, develop algorithm design and implementation skills, and gain practical experience in graphics programming with CUDA

Course Topics:

- Introduction to Parallel Programming
- Introduction to CUDA
- Paper Reviews
- Project

Course Outcomes:

- The course outcomes are skills and abilities students should have acquired by the end of the course.
 - a) An ability to apply engineering or computer science research and theory to advance the art, science and practice of the discipline
 - b) An ability to design and conduct experiments as well as to analyze, interpret, apply and disseminate the data
 - c) An understanding of research methodology

Course Policies:

- Students are expected to attend, and be on time, for every class. This demonstrates professionalism and consideration for your fellow students and your Instructor. While the course does not have an attendance policy, students who miss class and/or are late for class may experience an impact on their grade by missing classroom discussions, activities, and/or quizzes
- Students are expected to turn in all assigned materials in a timely manner.
- Students are expected to demonstrate professionalism and courtesy by either silencing or turning off all cell phones and/or other alarm or audible indicator devices
- The Instructors reserve the right to add to, and/or modify any of the above policies as needed to maintain an appropriate and effective educational atmosphere in the classroom and the laboratory. In the case that this occurs, all students will be notified in advance of implementation of the new and/or modified policy.

UNR Athletics:

- If you are involved with any ***university-sponsored*** athletic activities that will have an impact on your attendance, please provide your Instructor with a letter from your coach and/or the UNR Athletic Department as soon as possible, but no later than the end of the second week of classes. This should include the official schedule of your activities which will impact your attendance throughout the semester.

Assignments, Examinations and Grading:

Homework Assignments:

- There will be a number of Homework Assignments. These consist of practice questions which are intended to assist the student in mastering the course content. Some of these assignments will be collected and graded, but you will be informed in advance when an assignment is to be handed in

Quizzes:

- There will be several announced and unannounced quizzes in lecture.

Programming Assignments:

- The Programming assignments require the solutions to problems using the computer, in particular one with an NVIDIA CUDA capable video card. Typically you will be asked to submit a link to a web page where you have an electronic version of your code, and test runs, with an appropriate write-up for your program.
- All Formal Homework Assignments (Including exercises and Projects) and all Exams (Quizzes, Hour Exams, and the Final) are to be treated as individual and not collective efforts, unless specified otherwise. A severe penalty will be given to any assignment which indicates collusion or cheating. The usual penalty for cheating on project or an exam is failure in the course.

Late Submission Policy:

- Projects will be collected at the start of the class session in which they are due. A programming assignment turned in after collection is done will be graded as late.
- The penalty for late assignments and projects will be as follows: $\max(10\%, n^2\%)$, where n is the number of school days.

Grading Structure:

- The final grade will be based on (Tentative, subject to change):

Section	791v
Attendance/Participation/Homework	10%
Programming Assignments	40%
Project	30%
Quizzes	10%
Paper Presentation	10%

Important Notes:

- I will be using a +/- grading system.
- At the end of the semester (during the final exam period) a CD will be due with an electronic version of all projects and write-ups
- Every project must be completed, working, and turned in. For each project that is not, the final grade in the course may be lowered.

Academic Integrity:

- Students are encouraged to study together, however each student must individually prepare his/her solutions. Cheating or plagiarism are not permitted and will be sanctioned according with the UNR policy on Academic Standards. You should carefully read the section on Academic Dishonesty found in the UNR Student Handbook (copies of this section are on-line at <http://www.unr.edu/stsv/acdispol.html>). Your continued enrollment in this course implies that you have read it, and that you subscribe to the principles stated therein.

Academic Success Services:

- Your student fees cover usage of the Math Center (784-4433 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring/), and University Writing Center (784-6030 or www.unr.edu/writing_center). These centers

support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Disability Statement:

- If you have a disability for which you will need to request accommodations, please contact me or someone at the Disability Resource Center (Thompson Building, Suite 101), as soon as possible to arrange for appropriate accommodations.

Audio and Video Recording:

- Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.