CS 4973 - HPC OS and Architecture   Spring 2019

Course Information	Location:	CB 106 / Visual Arts data closet
	Class Times:	TR $15:30 - 16:45$
	Instructor:	Karl Frinkle
	Office:	MTH 112
	Office Hours:	MWF 10:00-10:50, TR 11:00-12:50, or by appt.
	E-mail:	kfrinkle@se.edu
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Course Overview In this course, we will attempt to learn and perform the following:

- install basic HPC OS from scratch
- repair/replace compute node hardware
- modify network settings on switches
- install packages on cluster
- add/modify users on cluster
- monitor cluster health
- troubleshoot problems
- perform routine maintenance/backup on cluster
- execute code written for HPC clusters
- manage job schedulers

It is hoped that by the end of this course, students will have the knowledge sufficient to make them candidates for HPC oriented positions at institutions with cluster hardware.

Course Outline/Work The semester will start with an history of the HPC systems here at Southeastern, with an introduction to our current cluster and its hardware and topology. We will then deconstruct our cluster and build a new cluster from the ground up, making use of a new switch, new hardware, and new interconnects. By the end of the semester, each student should be able to build/rebuild our cluster from scratch and manage the resulting system.

We will work closely with counterparts from across the state in learning the standards employed at other institutions, learning the latest in cutting edge cluster management tools (such as Razor). Of equal importance is being able to execute existing code on the new cluster, so we will also learn about compiling, scheduling, and executing parallel programs on the new cluster.

This course will have a large hands-on component, and as such, attendance is mandatory. Expect to spend many class periods in the Visual Arts data closet, where our cluster is housed, working on building/altering our hardware. We will also work on our cluster remotely as well, which will be another aspect of cluster management.

Grades Since this course is designed to be hands-on, a large percentage of your final grade is attendance. It is expected that students show up on time, ready to work, and willing to participate. Each student will be tasked, by the end of the semester, to rebuild the cluster from scratch, troubleshoot problems, and exhibit a mastery of processes we will have learned throughout the semester.

- 60% - Attendance: on time, participating, actively engaged.
- 40% - Final Demonstration: be able to build cluster from scratch, troubleshoot problems, apply knowledge learned.

COURSE MODIFICATION	I reserve the right to change any policies as I see fit to ensure that you are indeed receiving the best possible education that I can give you in the subject matter at hand. If I feel a certain aspect of the course does not appear to be effective in its method, I will attempt to change it (for the better I hope).
CODE OF CONDUCT	It is also expected that everyone will behave in a kind and courteous manner towards fellow students and the instructor. The student handbook can be found at the following URL: http://www.se.edu/dept/student-life/files/handbooks/2015-2016-Student-Handbook.pdf
ACADEMIC CALENDAR	All important SE calendar dates can be found at the following URL: http://www.se.edu/dept/registrar/calendar/
COUNSELING CENTER	Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745-2988 to schedule an appointment during normal working hours Monday-Friday, 8:00AM to 5:00PM. For after-hours mental health emergencies, please call SE Campus Police at (580) 745-2911 or the Mental Health Crisis Hotline at 1-(800) 522-1090.
DISABILITY ACCOMMODATIONS	Any student needing special accommodations due to a disability should contact the Office of Compliance and Safety, Administration Building, Suite 311 or call (580) 745-3090 (TDD# 745-2704). It is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely manner.
EQUITY AND NON-DISCRIMINATION STATEMENT	Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Director of Compliance and Safety & Title IX Coordinator, (580) 745-3090, or mdavis@se.edu.