

**CS 431 / 531: Introduction to Performance Measurement, Modeling and Analysis
Winter 2021**

Instructor: Professor Karavanic

Public website for the course: www.cs.pdx.edu/~karavan/perf
Google Shared Drive for the course: CS 431 531 Performance (registered students only)
Instructor email: karavan@pdx.edu

Course Description

This course is a Remote Course. We will have regular meetings over zoom on Monday/Wednesday at 4:40 pm. These sessions may include lectures, Q&A, and individual and group exercises.

We will survey the fundamentals of measuring, analyzing, and modeling computer performance. As we learn the material we will move through a set of case studies, allowing us to apply the techniques to increasingly complex problems. Case studies in Winter 2021 will include: multithreaded code; message passing (MPI code); containers and virtualized servers; python scripts; and others. These case studies include hands on programming exercises. Some work will be done by remote login to the CS Linux Lab. We will use a variety of performance tools through the course to learn the state of the art for performance techniques and practices. We will also learn data analysis methods for handling large data sets. We will read several research papers, and learn about some current research projects. Students may have access to selected research facilities in the PPerfLab.

Ph.D. students are welcome, *please email the instructor before the first class to discuss your additional requirements.*

Accounts:

You will need a “CS account” to log in to the Linux Lab systems (linuxlab.cs.pdx.edu) provided by the college. If you don't already have an account, go to <http://www.cat.pdx.edu/students.html> for instructions.

Mailing List:

All students will be added to the class google group. I will use this for general questions, information, updates, hints on the homeworks, schedule changes. Your pdx.edu address is used, so be sure you are getting your pdx.edu email. If you have not received a google group welcome email by the start of the first class, let the instructor know.

Required Textbook

There is no required textbook for this course. The readings will be provided or will be freely available online.

Workload:

Reading assignments, practice exercises, homeworks (including hands on programming in C, python, ... in a Linux environment).

Assessment:

Homeworks (50%) (Lowest score dropped)
Exams (50%)

Policies

- This is a Remote Class. We will conduct zoom sessions at the scheduled times (Tues/Thurs 1640) that include lectures, group work, and announcements. Students are responsible for anything that transpires during a class.

- If an extraordinary situation (for example severe illness) prevents you from working for a period of time, contact the instructor as soon as possible to discuss your situation and arrange a special schedule or incomplete.
- Requests for regrading must be submitted to the instructor in writing within one week of the time the graded assignment was made available to you. You must be specific in saying why you feel the grading is incorrect. A request for regrade will result in a re-evaluation of the entire assignment and your total grade may increase or decrease as a result.
- Makeup exams will not be given except in cases of severe medical or family emergencies. Please note that travel (even work-related travel) is not considered an emergency. If an emergency arises and you will miss the exam, contact the instructor *before the exam date and time* to arrange for a special circumstance, if at all possible. If not, try to be in touch as soon as possible.

Academic Honesty

Students are prohibited from handing in work as their own which they did not create. This includes handing in assignments in which a substantial amount of the material was done by someone else. Students need to be especially careful that in the process of discussing problems with other students they do not inadvertently end up using someone else's work. Similarly, failing to cite a source that contributed substantially to the solution of a problem is also considered to be cheating. It is not necessary to cite the textbook for the course on your homeworks, other than for direct quotes. All other sources should be referenced precisely.

In the event a case of cheating is discovered, the student will automatically receive a score of zero (0) for that assignment or exam. Additional penalties may be applied by the Department, College, or University.

FEEDBACK

I value student's opinions regarding the course and I will take them into consideration to make this course as exciting and engaging as possible. Thus, through the semester I will ask students formal and informal feedback. Formal feedback includes short surveys on preferred teaching methods and pace of the class. Informal feedback will be in the form of polls or in-class questions regarding learning preferences. It is best for everyone in the class if you bring up to my attention if something is not working properly (e.g. the pace of the class is too slow, the projects are boring, my teaching style is not effective) so that I can make the corrective steps.

Zoom, slack, and email ENVIRONMENT

I would like to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.) To help accomplish this:

If you have a preferred name and/or set of pronouns that differ from those that appear in your official PSU records, please let me know.

If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me.

If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

As a participant in course discussions, you should strive to honor the diversity of your classmates, and to treat everyone in the class with respect.

We will use technology for virtual meetings and recordings in this course. Our use of such technology is governed by FERPA, the Acceptable Use Policy and PSU's Student Code of Conduct. Your instructor will not share recordings of your class activities outside of course participants, which include your fellow students, TAs/GAs/Mentors, and any guest faculty or community based learning partners that we may engage with. You may not share recordings outside of this course. Doing so may result in disciplinary action.

OUR HEALTH

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. Portland State University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. You can learn more about the broad range of confidential mental health services available on campus via <https://www.pdx.edu/health-counseling/>

SHAC also has resources for physical health, including flu shots. You can check out their COVID-19 resources page here: <https://www.pdx.edu/health-counseling/covid-19-resources> (including testing)

Access and Inclusion for Students with Disabilities

PSU values diversity and inclusion; we are committed to fostering mutual respect and full participation for all students. My goal is to create a learning environment that is equitable, useable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify me.

The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment.

If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the Disability Resource Center to schedule an appointment and initiate a conversation about reasonable accommodations. The DRC is at drc@pdx.edu, <https://www.pdx.edu/drc>.

- If you already have accommodations noted by DRC to remove barriers to your learning, please contact the instructor so we can discuss the details.
- Note: if you have accommodations to remove barriers during testing, please contact the instructor so we can plan a time and setting that works.