Writing good code is important, but the code that we write is never executed in isolation. Our computing environments are large and complicated systems, and we cannot take full advantage of our hardware resources if we treat our system like a black box. In this course we will build familiarity with a set of useful tools, and become comfortable exploring and modifying our systems. But more importantly, we will document what we learn so that students at Williams (including ourselves) can take advantage of these resources.

Course Structure

This course will be a very "hands-on" WSP. In each meeting, we will work together on a set of tasks that are sometimes open-ended. They will often require reading documentation and a significant amount of trial and error. The course is not meant to be competitive; we will be working in groups, and collaboration among groups is encouraged. Please be open and share your skills and expertise with classmates — you will hopefully find that sharing your knowledge helps to build deeper understanding. Please also share your questions because everybody is learning as we go, and the simple act of asking a question often helps to clarify our thoughts.

Getting to Know Each Other

1. Why did you choose this class?

2. What are you goals for winter study?

3. How do you envision your long-term relationship with computer science (take a few classes, major in CS, work professionally in the field, etc.)?

4. What programming languages do you know?

5. What is your preferred name (and pronunciation)?

6. What are your preferred pronouns (she, he, they, zie, xe, etc.)?

7. Do you have any questions for me? If so, what are they?

Below are utilities that I have found useful as a systems researcher. For each tool, please tell me how familiar you are with that tool. For example, are you a user, a hacker, or are you excited to learn more?

- `ssh`

- Version control (`git`, `svn`, etc.)

- Text editor (`emacs`, `vim`, `atom`, etc.)

- `screen`/`tmux`

- `sed`

- `grep`/`find`

- virtualization (`vmware`, `qemu-kvm`, `VirtualBox`, `Xen`, etc.)

- `make`

Below are some skills that I have found useful as a systems researcher. For each area, please indicate your familiarity. For example, are you a user, a hacker, or are you excited to learn more?

- Compiling code

- reading/writing bash/shell scripts

- Modifying OS configuration files

- Debugging

- Benchmarking

- Performance profiling