

Welcome
to the
Software Carpentry
Boot Camp
at GZW

Goals

- Learn about management of scientific data
- Learn about automating tasks
- Hands-on training with the tools of the trade
- ***Do more reliable computational science***

Software development

- You are not going to become professional software developers in two days...
- ...and maybe never since your main goal is to do science.
- But that's not a reason to ignore a few decades of experience with software development.

Software changes

- Research software evolves with research projects. It changes all the time.
- Most programs start as modifications of existing programs. You rarely start from scratch.
- That small script you write to test an idea may well survive for many years, with modifications.
- Quality control is important right from the start.

Software is not just for computers

- Your programs are the only detailed documentation of what you did.
- You will look at it many times in the future.
- Your colleagues will look at it and try to understand it.
- Write software with people in mind...
- ...and use the computer to check that it works.

Put your computer to work

- Computer are good at repetitive work.

You are not.

- A script can be verified many times.

The steps you execute by hand cannot.

Reproducible Research

- Try to make it possible for someone else to re-run all your computations and reproduce your results.
- This is much more difficult than it seems...
- ...and rarely succeeds completely ...
- ...but it's worth trying.

Boot Camp Instructions

Understanding, not memorizing

- We will give you our slides, examples, etc.
- You can easily find all the information we show here in the Internet...
- ...if you know what to search for!
- So please concentrate on understanding the concepts, not on memorizing the details.

Work together

- Everyone here starts with different knowledge and experience.
- If you are bored because you already know something we explain, help someone who doesn't.
- You can learn as much from each other as from us.

We want feedback!

- The sooner the better.
- Use the minute cards.
- Profit from the coffee breaks.

Today

09.30 Introduction

10.30 COFFEE

11.00 Bash shell scripting - Steve

12.00 LUNCH

13.00 Introduction to Python - Konrad

14.30 COFFEE

15.00 Automation and Make - Steve

16.30 CLOSE

Tomorrow

09.00 Version control - Konrad

10.30 COFFEE

11.00 Testing - Steve

12.30 LUNCH

13.30 NumPy - Konrad

15.00 COFFEE

15.00 Putting it all together - Steve

16.00 CLOSE