Script Programming 1TD328/ Programming Bridging Course 1TD046
Introduction

Dr Jonathan R. Bull
Postdoctoral Fellow in Scientific Computing
Louis J. van Rensburg
Masters student in Computer Science
Ashkan Dorostkar
PhD candidate in Scientific Computing
Autumn 2017
Your Teacher

• Postdoctoral Fellow in Department of IT, Division of Scientific Computing (TDB)
• Researching numerical algorithms for turbulent flow simulations - applications in aerospace engineering
• I strongly believe that the best way to learn to write code is to get your hands dirty!
Icebreaker

1. Hands up if you have used Linux before?
2. Hands up if you have used Matlab or Python before?
3. Hands up if you have written compiled code before?
4. Tell me what you expect from this course
Structure

• **Script Programming**: 5 credits, week 35-43
  • use Python for data analysis e.g. in life sciences

• **Programming Bridging Course**: 10 credits, week 35-02
  • includes Script Programming as part 1
  • part 2 covers ‘classical’ programming in C, C++, wrapping in Python

• Continuous assessment by programming assignments (some graded) and projects (graded report + oral presentation)

• No exam
Student-Led Active Learning

- **Labs** introduce new topics and skills.
- You work through lab exercises individually and discuss them with your classmates. We will be on hand to provide help.
- **Assignments** are done in your own time individually.
- Not all are graded but you do need to do them to progress.
- Hand in a part-finished assignment if you can’t complete it.
- **Seminars** consolidate what you learn in labs and assignments.
- Slide shows are boring, I will teach through live demos where possible.
- **Be active** in seminars: do the demos on your laptops and ask lots of questions.
Learning Outcomes

• **Script Programming:**
  • describe the strengths, weaknesses, and applicability of scripting languages;
  • use Python to solve scientific problems in bioinformatics or engineering;
  • learn to use standard libraries for
  • build more complex programs with functions, modules and classes;
  • (write shell scripts and combine shell scripts with Python.)

• **Programming Bridging Course:** in addition to the above, you will
  • write programs in C and C++ to solve scientific problems in the computational and engineering areas;
  • describe the fundamental ideas behind the object-oriented approach to programming and how it can be applied to engineering applications;
  • glue Python together with other software components;
  • write and use shell scripts in combination with C or C++. 
Course Literature

https://docs.python.org

https://stackoverflow.com

https://github.com/jakevdp/PythonDataScienceHandbook/blob/de0cc6bd317012d50ab3dd06e3cf4e256de1973f/notebooks/Index.ipynb
Questions?

• I will be teaching in English but I do speak good conversational Swedish.
• Jag undervisar på engelska men jag prata också vardagligt svensk.
• If you do not understand something I said, please ask me.
• Om ni inte förstår vad jag säger, bara fråga mig.

• Next session: datasal 1515, Hus 1 (across the gardens on the right)