



UiO : **Department of Geosciences**
University of Oslo

GEO4300 – Geophysical Data Science
Computer lab 0

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- Who we are
- Have you used Python before?

Datalabs & Obligs

10 Data labs on Thursday [14:15-17:00](#) IT-lab 209

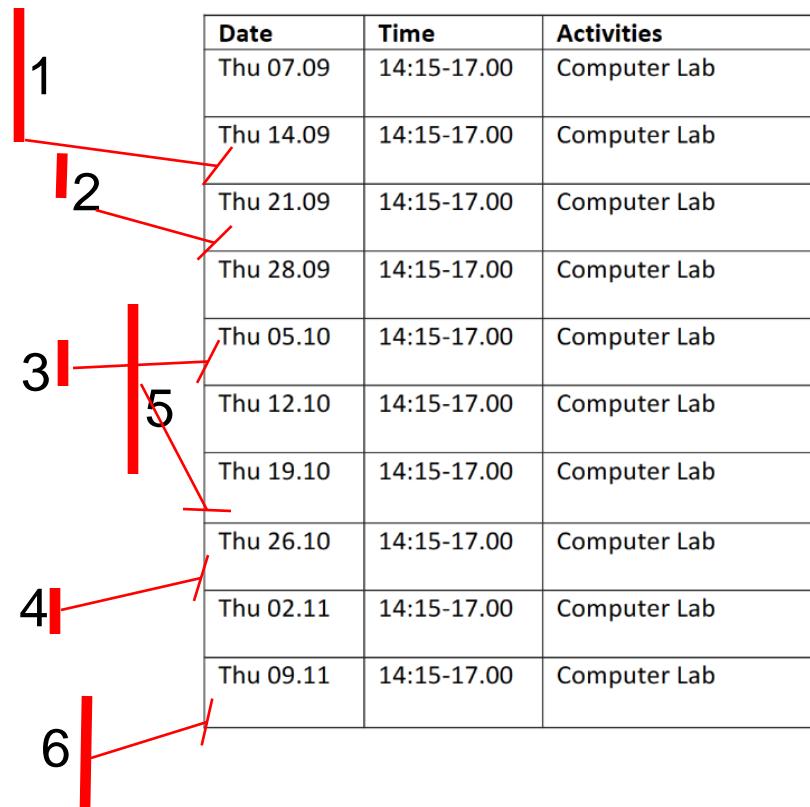
Technique support for:

6 exercises counts 25% of the Final Grade

1 course project counts 25%

Date	Time	Activities	Room	Teachers
Mon 28.08	14:15-16.00	Lectures: Welcome, Random variables	219	CX
Thu 31.08	10:15-12.00	Lecture: Discrete distributions	U37	CX
Mon 04.09	14:15-16.00	Lecture: Normal distribution and Continuous distributions	219	CX
Thu 07.09	10:15-12.00	Lecture: Frequency analysis	U37	CX
Mon 11.09	10:15-12.00	Intro to project	PC209	NP
Thu 14.09	12:15-14.00	Continue project	PC209	NP
Mon 18.09	14:15-16.00	Lecture: correlation and simple regression	U37	KB
Thu 21.09	10:15-12.00	Lecture: Confidence interval	219	CX
Mon 25.09	14:15-16.00	Lecture: Multiple regression	219	KB
Thu 28.09	10:15-12.00	Lecture: Multiple regression and PCA	U37	KB
Mon 02.10	10:15-12.00	Project continued	PC209	NP
Thu 05.10	10:15-12.00	Lecture: Machine learning	U37	KA
Mon 09.10	14:15-16.00	Lecture: Hypothesis testing	219	CX
Thu 12.10	10:15-12.00	Lecture: Goodness of fit testing	U37	CX
Mon 16.10	14:15-16.00	Lecture: Time series analysis	219	CX
Thu 19.10	10:15-12.00	Lecture: Time series analysis and stochastic models	U37	CX
Mon 23.10	10:15-12.00	Project continued	PC209	NP
Thu 26.10	10:15-12.00	Lecture: Geostatistics	U37	KA
Mon 30.10	14:15-16.00	Lecture: Summary of the course	219	CX
Thu 02.11	10:15-12.00	Prepare for exam	U37	CX

CX – Chong-Yu Xu, NP – Norbert Pirk, KE – Kolbjørn Engeland, KA – Kristoffer Aalstad



Don't wait for deadline...

Submissions

Trying to finish the exercise early, to have enough time left for course project.

Your solution to each exercise and project must be submitted as **.ipynb** and **.html file** in Canvas before the deadline.

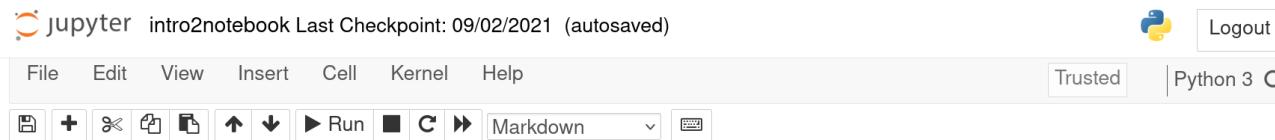
Your **.ipynb** must be possible for me to run

Make sure Kernel – Restart & Run All works

If you use new input files, include them in your submission
(make a zip)

Let's get started

How to submit an exercise:



Introduction to Python with Jupyter Notebook

We will use jupyter notebook for all exercises in GEO4300. To make sure all of you know how to work with python in jupyter notebook, you will in the following solve a few short exercises that you submit in Canvas. If you are stuck, ask the internet, your class mate or me (Emiliano).

1. Short intro

1.1 Jupyter notebook

- Jupyter notebook with IPython is used to make documents that can include text, formulas, live python code, outputs and figures.
- A document usually contain two types of cells: Markdown and Code.
 - This is a Markdown cell, and if you double click on it, you can edit it. Here you can write text using Markdown syntax (<https://www.markdownguide.org/basic-syntax/>) and formulas using LaTeX syntax (link to converter: <https://www.codecogs.com/latex/eqneditor.php>).
 - Code cells have "In []:" on the left side and are used to write Python code.
- To run a cell, press "Ctrl"+"Enter" (it will execute and stay on the same cell) or "Shift"+"Enter" (it will move to the next cell after execution). For other shortcuts, see **Help --> Keyboard Shortcuts** in the menu above.

1.2 Before you submit

- Click **File --> Rename** to change the file name.
- When you are finished with a notebook document, on the menu click on **Kernel --> Restart & Run All**. If everything works you are ready to submit.

1.3 How to submit

- Click **File --> Download as --> HTML (.html)**
- Make sure the .html file looks OK and shows all your output.
- Upload both the .html and .ipynb file to the submission in Canvas.
- If you have made new files that you read or use in the ipynb file, upload them as well (so I am able to run the ipynb file on my computer). You can also submit a compressed .zip file.

Submit tips

- Procedure and understanding more important than correct numerical result (e.g. if you are not able to completely answer the question, explain what you did and/or what you could not do).
- Figures should be understandable and have title, x and y labels, units, and legend if more than one plot.
- Write an understandable code (meaningful variable names) and write formulas if needed.
- Make sure your code runs again when re-opening the notebook from scratch.
- When providing an answer, refer explicitly to the question number.