Modern Astrostatistics
Resit Exam 2019

Student name:

Student university-ID number:

Notation:
Vectors and matrices must be visually distinguishable. Transposed vectors and matrices are to be marked as such, also in scalar products and outer products.

Part A: Understanding. Totalling: 17 CP.

I) Exercise title ..... **(Speed) [5 CP]**

II) Exercise title ..... **(Speed and logic) [5 CP]**

III) Exercise title ..... **(Accurate memory and concise answers) [7 CP]**

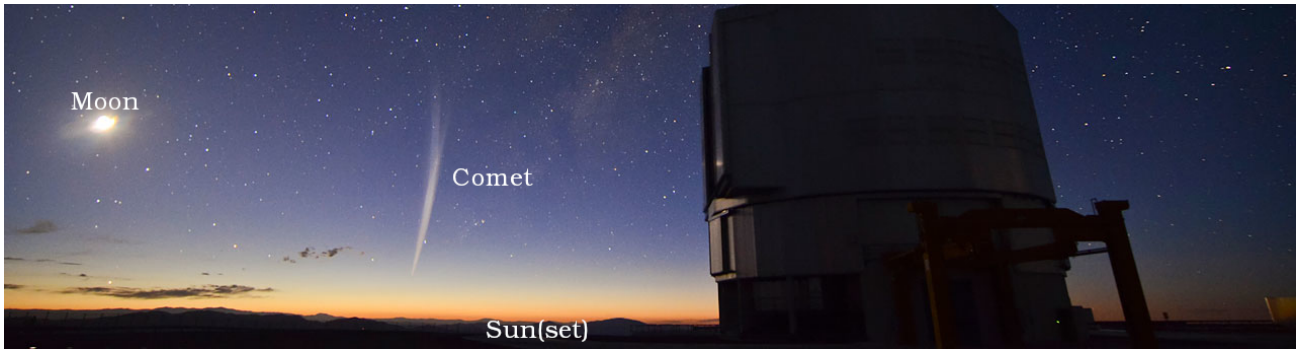

Figure 1: Comet migrating towards the Sun, and being over time lost in the Sun's glare (Image Credit: ESO).

Part B: Analytics. Totalling: 18 CP.

I) The comet (Concentration and logic; $\geq$ 37 mins) [18 CP]

Your data:

Scientific question to be answered:

Intermediate result given such that you can check or restart here.

Your interpretation of the result.

Part C: Numerics. Totalling: 15 CP.

Submission for marking:
Create a folder with your name and student identification number. Submit this folder at the end of the exam. Only *final* versions of code are accepted, multiple precursor-versions are ambiguous and will hence not be graded.

1. Check all your code mentions your names in an introductory comment line.
2. Copy your folder to have a security backup.
3. Open a terminal.
4. using cp, copy one of your folders to /path/to/be/revealed.
5. Additionally submit your files by storing them on our USB sticks.

Do not send code by email, it will be rejected by the university spam filter. Before leaving the room, please come to the front and obtain confirmation of receipt of your files.

Allowed:
You are allowed to read and search the python documentation, the GSL documentation, C/C++ and gnuplot documentation. You are allowed to read Wikipedia, the github repository of Elena Sellentin, and you are allowed to google in order to find the right documentation. You are allowed to access and use the code you created during the tutorials. We will track 'strangely' similar codes.

Not allowed:
Everything that is not allowed is forbidden. Reading any other websites, e.g. stackexchange, crossvalidated, Facebook, or your emails, or loading high-level astrophysics libraries, will lead to the student failing the exam. In case of doubt, please ask the lecturer and the assistants.

I) Exercise title ..... (Recall and speed) [4 CP]

II) Exercise title ..... (Accurate implementation) [11 CP]
This exercise includes images of expected outcomes.