Assessment for the course 'Advanced Statistics'

The assessment will follow the guidelines described in Section 3 of the Practical Guide for Luiss Graduate School Students, which you find in the file **student_handbook.pdf**. We welcome students to read it carefully before asking for clarifications.

Option 1 (Final exam for compliant students)
For compliant students in the examination session of the semester in which the course is delivered (December or January)

1. Continuous assessment (30%) on group project: 5% proposal + 25% report
2. Written final exam (70%): 10% on group project + 60% covering all the topics of the course (lectures, exercise sessions, and R labs) **from Week 1 to Week 10** included

More information on the group project may be found below.

Option 2 (Final exam for non-compliant and exempted students)
For non-compliant students in the examination session of the semester in which the course is delivered (December or January)

Written final exam (100%) covering all the topics of the course (lectures, exercise sessions, and R labs) **from Week 1 to Week 12** included

Option 3 (Retake session)
For compliant, not-compliant, and exempted students in further examination sessions. Individual oral exam (100%) covering all the topics of the course (lectures, exercise sessions, and R labs) **from Week 1 to Week 12** included. Lecture notes and references will be uploaded on MyLuiss platform.

If you sign up for a retake session and later decide not to participate, please let me know by email at least 2 days before the date of the oral exam. This will make the planning of the exam day smoother for everyone.

Important Dates for Continuous Assessment

• Monday 13 October: Group members

• Monday 17 November: Project proposal

• Monday 1 December: Project report

Group Project

- **Group members**: 3 (recommended) or 4 people. Each group should choose a representative who will write an email before Oct 13 addressed to mcatalano@luiss.it and mariaelena.bottazzischenone@uniroma1.it clearly stating the name and student ID of the other group members, who should be put in copy. The group representative will be responsible for uploading the project report and the project proposal on the MyLuiss platform, and for further communications with us.

- **Goal**: solve an applied data analysis problem.

- **Project report**: the output of the project will be a 3 page pdf report (11pt font). The file should indicate the group number (provided by us), the name and student ID for each group member, and the email of the group representative.
  It should be composed of 6 sections:

1. Problem (e.g., provide a description of the problem and why it is important).

2. Data (e.g., describe the data, where you found it, who has used it before, and why it is relevant to solve the problem. If you have used the dataset for other projects please explain why and how your analysis will differ from your previous one).

3. Method (e.g., chose one or two methods that can be used to solve the problem with the available dataset).

4. Implementation (e.g., provide details on the implementation of the method in R, with an emphasis on the choices of parameters and running time).

5. Evaluation (e.g., find a natural measure of evaluation of the output and use it to test your method).

6. Interpretation (e.g., explain how the results of your implementation of the method(s) helped to gain information about the problem).

   The project report (Group+number_report.pdf, e.g. Group3_report.pdf), the code (Group+number_code.R, e.g. Group3_code.R), and the dataset (e.g. Group3_data.csv) must be uploaded by the group representative on the MyLuiss platform as three separate files. If the dataset exceeds 50 MB, students should instead upload a file containing a direct link to the dataset (e.g., from a shared folder). Groups that fail to provide direct access to the data or a code that can be run without modifications will be penalized.

- **Project proposal**: 1 page pdf description of preliminary answers to 1., 2., 3. and 5., which do not require the implementation of the method (contrarily to 4. and 6.). The project proposal must be uploaded by the group representative on the MyLuiss platform.

- **Expectations**:
  - students are expected to implement (variations of) the methods discussed in class, with some original contribution (e.g., use a variation of the method, an unseen evaluation criteria, or a visualisation tool that was not discussed in class).
  - Please add references to relevant papers or books.

- Important figures must be embedded in the report (within the 3 page limit). Less interesting figures may be included as an appendix but will not be considered during evaluation (that is, the report must be self-contained)
- Questions about the project will be asked during the final written exam. The questions may cover any topic related to the project, including the theory behind the used methods.
- If a group or an individual is particularly keen on advanced statistical theory, please come to me or write me an email at mcatalano@luiss.it before week 6.