Laurea / B.A.
in Global Governance

Academic Year 2024-2025
Syllabus
Statistical Tools for Decision Making
CFU 9
Prof Rosario Barone

Course Description
The course provides the basics of descriptive statistics, statistical inference and statistical computing, highlighting the potential applications in political, economic and social sciences.

Teaching Method
Classroom teaching, exercises, discussion of case studies.

Schedule of Topics

Topic 1	Descriptive statistics: types of data; graphical representations; means; variability, contingency; correlation; simple linear regression.
Topic 2	Probability: introduction to the probability theory and elementary probability rules; random variables; common families of distributions; sampling distributions.
Topic 3	Statistical inference: point estimation; confidence intervals; hypothesis testing; introduction to multiple linear regression. Applications in R.
Topic 4	Introduction to the statistical software R: syntax, functions and graphical procedures.

Textbook and Materials

Textbook
Alan Agresti, Christine Franklin, "Statistics: The Art and Science of Learning from Data" Pearson; 4th International Edition, ISBN 9781447964186.
Additional required readings
W. N. Venables, D. M. Smith, "An Introduction to R", Version 4.3.1 (2023-06-16), available at: https://cran.r-project.org/doc/manuals/R-intro.pdf

Assessment
The final exam may consist of: theoretical questions, (oral) discussion of statistical exercises, implementations of functions and interpretation of some outputs in R.
The final exam of non-attending students will be covering all the topics of the course (see below).

MIDTERM EXAM
There will be one elective midterm (written) exam, consisting of theoretical questions and exercises. It is highly recommended to attend the midterm exam. The final grade will consider both the results of the midterm and of the final exams. The grade of the midterm exam CANNOT be rejected; it must be accepted. Only the final grade can be rejected. In that case the student must repeat the (oral) final exam about the whole program.
Students who failed or did not attend the midterm exam will be evaluated only through the final oral exam.

FINAL EXAM
The final exam will be a written test and a mandatory oral test only for those with a grade higher than 26/30 at the written exam. For those who have done the midterm, the written test will have questions only on the second part of the program; while for those who have not done the midterm the test will be based on the whole program. Both the final and midterm exams will be in presence.

As a non-attending student (less than 80% of presence and no midterm done) you can choose when to enroll, in the first and/or the second round, on the whole program.

Examination is based off of a midterm exam and a final exam.
The midterm exam is open to both attending and non attending students and will take place during midterm week. The midterm exam will cover all topics taught up to the exam date.
The midterm exam is considered PASSED in case of a positive grade (>18), FAILED in case of a negative grade (<18), or in case of absence or withdrawal – this applies to both attending and non-attending students.

The final exam differs according to whether the student has passed the midterm or not.
For the students who have PASSED the midterm
If they are ATTENDING: they will take a written exam on the remaining topics taught after the midterm exam (+ oral exam only for those who obtain a grade higher than 26 on the written exam)
If they are NON-ATTENDING: they will all take a more in-depth written and oral exam on the topics taught after the midterm exam.
For the students who have FAILED the midterm
If they are ATTENDING: they will take a written exam on the entire program of the course (+ oral exam only for those who obtain a grade higher than 26 on the written exam)
they will all take a more in-depth written and oral exam on the entire program of the course.

Office hours: upon appointment by e-mail (rosario.barone@uniroma2.it).

NOTE: If you are an Erasmus or a non Global Governance student who would like to attend one or more courses in the Global Governance program, please be aware that, before enrolling in the course, you should have read the code of conduct and the procedural rules characterizing our program. We assume that, if you enroll in the course, you have read and accepted all Global Governance values and rules. Notice that attendance is expected from the very first lesson and you need to attend at least 80% of the course to be considered an attending student.

Description of the methods and criteria for testing learning
The examination assesses the student's overall preparation, ability to integrate the knowledge of the different parts of the programme, consequentiality of reasoning, analytical ability and autonomy of judgement. In addition, language property and clarity of presentation are assessed, in accordance with the Dublin descriptors (1. knowledge and understanding; 2. applying knowledge and understanding; 3. making judgements; 4. learning skills; 5. communication skills).

The final grade will be related 70% to the degree of knowledge and 30% to the expressive capacity (written and oral) and autonomous critical judgement demonstrated by the student.
The examination will be graded according to the following criteria:

Unsuitable: important deficiencies and/or inaccuracies in the knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations and limited critical and judgement skills; the topics are exposed in an incoherent manner and with inappropriate language.
18-20: barely sufficient knowledge and understanding of the topics, with possible generalizations and imperfections; sufficient capacity for analysis, synthesis and autonomy of judgement; the topics are frequently exposed in an inconsistent manner and with inappropriate/technical language;
21-23: surface knowledge and understanding of the topics; ability to analyse and synthesise correctly with sufficiently coherent logical argumentation and appropriate/technical language.
24-26: fair knowledge and understanding of the topics; good analytical and synthetic skills with rigorously expressed arguments but not always appropriate/technical language.
27-29: complete knowledge and understanding of the topics; considerable capacity for analysis and synthesis. Good autonomy of judgement. Arguments presented in a rigorous manner and with appropriate/technical language.
30-30L: very good level of knowledge and thorough understanding of topics. Excellent analytical and synthetic skills and independent judgement. Arguments expressed in an original manner and in appropriate technical language.