



Academic Year 2018-2019

Syllabus

Statistical tools for decision making

CFU 9

Dr. Monia Ranalli (CFU 7)

Prof. Roberto Rocci (CFU 2)

### Course Description

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

### Teaching Method

Classroom teaching, exercises, discussion of case studies.

### Schedule of Topics

<b>Topic 1</b>	Univariate descriptive statistics: types of data; graphical representations; means; variability.
<b>Topic 2</b>	Bivariate descriptive statistics: contingency; correlation; simple linear regression.
<b>Topic 3</b>	Probability: elementary probability rules; random variables; common families of distributions; sampling distributions.
<b>Topic 4</b>	Statistical inference: point estimation; confidence intervals; statistical tests about hypotheses; multiple linear regression.

### Textbook and Materials

#### Textbook

Alan Agresti, Christine Franklin, Bernhard Klingenberg “Statistics: The Art and Science of Learning From Data”

Pearson; 4th International Edition, ISBN 9781292164779.

(Textbook sections: 1.1-2, 2.1-5, 3.1-4, 4.1-3, 5.1-4, 6.1-3, 7.1-3, 8.1-4, 9.1-6, 13.1-3)

#### Further reading

Alan Agresti, Barbara Finlay, “Statistical Methods for the Social Sciences”, Pearson; 4th Edition.

### Attendance and expectations of students

It is strongly recommended the lesson attendance. During the lessons we will deep dive all the topics, and this could decrease substantially the number of hours required by the student to understand the course material on his/her own. Furthermore, it is very important to be participative throughout the semester. From our experience we find that the successful students in our statistics courses are those who do not wait until the last minute to review and study the notes, solve the exercises and compare their solutions with those provided online, ask questions during the lesson, and prepare for the exam as follows: read the slides and review the notes after class (have book available to use as a reference), review the tutorials, then solve further exercises covering the topics learned during the class.

### Assessment

#### If the student attends more than 80% of lessons:

The final exam is a written test consisting of theoretical questions and exercises to be answered in 90 minutes. It is a closed book exam. Students are not allowed to consult any materials or other sources of information (including notebooks, laptops, dictionaries, mobile phones) during the exam.

## MIDTERM EXAM

There are two elective midterm (written) exams. Only students that passed the first midterm can access the second one. Students that passed the two midterms must participate to the final exam in the winter session to discuss the results of the last midterm exam. The final grade will be the average of the two grades obtained in the two midterms. The distinction (laude) is obtained if it is collected in both midterms.

### **If the student attends less than 80% of lessons:**

The final exam is a written test consisting of theoretical questions and exercises to be answered in 90 minutes. It is a closed book exam. Students are not allowed to consult any materials or other sources of information (including notebooks, laptops, dictionaries, mobile phones) during the exam. Furthermore, it is required to provide a written critical review 4 pages long on the following paper

Lindley D.V. The Philosophy of Statistics. *Journal of the Royal Statistical Society*. Series D (The Statistician), Vol. 49, No. 3 (2000), pp. 293-337

It should be done at home and should be submitted via email three days before the exam date chosen.

### **Office hours**

[monia.ranalli@uniroma2.it](mailto:monia.ranalli@uniroma2.it)

[roberto.rocci@uniroma2.it](mailto:roberto.rocci@uniroma2.it)

By appointment.

**NOTE:** Erasmus or non Global Governance students who would like to attend one or more courses and take one or more exams need to contact the Secretariat of Global Governance by e-mail [global.governance@uniroma2.it](mailto:global.governance@uniroma2.it) for registration and inform the Professor of the course. They are required to sign a code of conduct like all Global Governance students, accepting all values and rules. Please read it carefully before enrolling.

Notice that attendance is required from the very first lesson and you need to attend at least 80% of the course to be considered an attending student.