NEW YORK UNIVERSITY   NYUFlorence

Fall 2019 - Quantitative Methods
Statistics for Social Research
POL-UA 9800 F01/ SOC-UA 9302 F01
Thursday 15:00-17:45
Villa Ulivi, Aula Giardino

Class Description

In our society the need for deep understanding of what is going on translates into a need to keep track what has happened, how to outline trends, plan the future knowing the present or the past. We have all heard about demographic pressure, social policies, health care planning, inflation, market volatility: these are all concepts which rely heavily on statistical information. Changes have to be managed properly and in an informed way: scientific experiments be they on a medicine, on fertilizer or airbags must be planned as to ensure their validity. Total quality in production is a statistics-based philosophy of management, and if you like a commercial it is also because a statistician has provided information about consumer tastes and behavior. In this course, we will provide an introduction to the tools of statistics but most importantly, we will try to understand the rationale behind statistics. This course will cover the following topics: descriptive statistics, elementary probability (which is necessary for understanding inferential statistics), and inferential statistics. Correlation and regression will be presented as descriptive statistics at the end of the course.

Instructor Details

Carla Rampichini

carla.rampichini@nyu.edu

Office Hours: my office hours are open. Usually I can receive you Wen-Fri from 3 p.m. to 6 p.m. Do not hesitate to make an appointment asking me during class or by email.

Villa Ulivi Office Location: top floor

Villa Ulivi Phone Number:+39 055 5007 300

Desired Outcomes

On completion of this course, students should:

- Have knowledge about basic concepts in statistics;

- Own ability to apply statistical methods for collection, processing and analysis of quantitative data particularly such linked to the field of Economy, Business and Social Science;

- Assess the role of randomness and variability in different contexts;

- Have made relevant connections between theory and real world examples, through references to media material, readings or case studies.

Assessment Components
- Attendance and Class Participation: 20%
- Written Assignments (Five Graded Problem Sets): 20%
- Midterm Exam: 25%
- Final Exam: 35%

Failure to submit or fulfill any required course component results in failure of the class.

Assessment Expectations

- **Grade A:** The student makes excellent use of empirical and theoretical material and offers structured arguments in his/her work. The student writes comprehensive essays/exam questions and his/her work shows strong evidence of critical thought and extensive reading.
- **Grade B:** The candidate shows a good understanding of the problem and has demonstrated the ability to formulate and execute a coherent research strategy
- **Grade C:** The work is acceptable and shows a basic grasp of the research problem. However, the work fails to organize findings coherently and is in need of improvement
- **Grade D:** The work passes because some relevant points are made. However, there may be a problem of poor definition, lack of critical awareness, poor research
- **Grade F:** The work shows that the research problem is not understood; there is little or no critical awareness and the research is clearly negligible
- *Please note, Stern Business courses will adhere to the Stern Grading

Grading Guidelines
A=94-100

A minus =90-93

B plus =87-89

B=84-86

B minus =80-83

C plus =77-79

C=74-76

C minus =70-73

D plus =67-69

D=65-66

F=below 65

Grading Policy
Please refer to Assessment Expectations and the policy on late submission of work.

Academic Accommodations:

Academic accommodations are available for students with documented disabilities. Please contact the Moses Center for Students with Disabilities at 212-998-4980 or see the Moses Center for further information.

Students with disabilities who believe that they may need accommodations in a class are encouraged to contact the Moses Center for Students with Disabilities at (212) 998-4980 as soon as possible to better ensure that such accommodations are implemented in a timely fashion. For more information, see Study Away and Disability.

Attendance Policy

Study abroad at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. **To ensure the integrity of this academic experience, class attendance at the centers is mandatory, and unexcused absences will be penalized with a two percent deduction from the student's final course grade.** Students are responsible for making up any work missed due to absence. Repeated absences in a course may result in failure.

For courses that meet once a week, one unexcused absence will be penalized by a two percent deduction from the student's final course grade. For courses that meet two or more times a week, the same penalty will apply to the number of class times over a single week

Excused Absences

In case of absence, regardless of the reason, the student is responsible for completing missed assignments, getting notes and making up missed work in a timely manner based upon a schedule that is mutually agreed upon between the faculty member and the student. **The only excused absences are those approved by the Office of Academic Support; they are as follows:**

Absence Due to Illness

- If you are sick, please see a doctor. Contact the Office of Student Life for assistance.
- For absences that last for two or more consecutive days,a doctor's certificate, "certificato medico" is required. The doctor will indicate in writing the number of days of bed rest required. Please note these certificates can only be obtained on the day you see the doctor and cannot be written for you afterwards.
- Absences can ONLY be excused if they are reported WITHIN 48 HRS of your return to class via the online NYU Florence Absence Form
- OAS will not accept a student email or telephone call regarding an absence due to illness
- OAS will only notify faculty of absences REPORTED on the ABSENCE FORM
- The Office of Student Life, when assisting you in cases of severe or extended illness, will coordinate with the Office of Academic Support to properly record your absences

Due to Religious Observance
- Students observing a religious holiday during regularly scheduled class time are entitled to miss class without any penalty to their grade. This is for the holiday only and does not include the days of travel that may come before and/or after the holiday
- Information regarding absences due to religious observance must be provided at least SEVEN DAYS PRIOR to the date(s) in question using the online NYU Florence Absence Form

- Please note that no excused absences for reasons other than illness can be applied retroactively.

Due to a class conflict with a program sponsored lecture, event, or activity
- All students are entitled to miss one class period without any penalty to their grade in order to attend a lecture, event or activity that is sponsored by the academic program
- Information regarding absences due to a class conflict must be provided at least SEVEN DAYS PRIOR to the date(s) in question using the online NYU Florence Absence Form
- Please note that no excused absences for reasons other than illness can be applied retroactively.

Students with questions or needing clarification about this policy are instructed to contact a member of the Office of Academic Support located in Villa Ulivi or to email florence.academicsupport@nyu.edu

Late Submission of Work
- All course work must be submitted on time, on the date specified on the syllabus.
- To request an extension on a deadline for an assignment, students must speak to the professor one week prior to the due date.
- To receive an incomplete for a course at the end of the semester, two weeks before final exams, both the student and the faculty member must meet with the Assistant Director of Academic Affairs to review the request and if granted, they must both sign an Incomplete Contract detailing the terms for completing missing coursework.

Plagiarism Policy
PLAGIARISM WILL NOT BE TOLERATED IN ANY FORM:
The presentation of another person's words, ideas, judgment, images or data as though they were your own, whether intentionally or unintentionally, constitutes an act of plagiarism.

In the event of suspected or confirmed cases of plagiarism, the faculty member will consult first with the Assistant Director for Academic Affairs as definitions and procedures vary from school to school.

Writing Center:

The Writing Center, located in Villa Ulivi, offers you feedback on any type of writing, at any stage in planning or drafting; very rough drafts are welcome. Sign up for a consultation at the [Writing Center's website](#) and submit your working draft or ideas at least six hours in advance to [NYU Florence Writing Center](#). You can drop in for a consultation M-Th, but remember that appointments are given priority. Please also note that the Writing Center does not correct or "fix" your writing but prompts you to think and work. The aim is to create stronger writers in the long term, not necessarily perfect papers in the short term.u7ydx6

Required Text(s)

- *Introductory Statistics from OpenStax* this textbook is available for free [online](#): in [web view](#), and [PDF](#) formats. You can also choose to get a print version from OpenStax on Amazon.com (Print: ISBN-10: 1938168208, ISBN-13: 978-1-938168-20-8).
- Further material (slides, handouts, ecc) will be placed on NYU Classes

Copies of each textbook are available for consultation and short term loans in the [Villa Ulivi Library](#). Extra copies of some textbooks are also available for semester long loans. More information on[Books and Course Materials](#).

Supplemental Texts(s)

- Diez D. et al. (2019). *OpeniIntro Statistics,* Fourth Edition This book may be downloaded as a free PDF at openintro.org/os.
- The journal *Significance* edited by the Royal Statistical Society and the American Statistical Association is a source of articles on statistical methodology applied to current issues presented in a non-technical manner. It is an excellent base for choosing a topic for discussion in class. This is the link to the [magazine home page](#). The journal can be freely accessed at this [URL](#) (click on the second link "2004 – latest: Wiley Online Library Database Model 2017" - then you need to login into the NYU Library system).
- P.H.Pollock III (2015). A Stata Companion to Political Analysis third edition, CQ Press.
- Web page for the course on newclasses where announcements for supplementary required readings will be posted.

Internet Research Guidelines:

The careful use of internet resources is encouraged and a list of recommended websites will be given. Failure to cite internet and other non-traditional media sources in your written work constitutes plagiarism.

Additional Required Equipment:

Bring your laptop to class:
- quizzes may be conducted in class (3-5 questions ten minutes allocated after the half-time interval)
- the statistical software Stata will be installed on your laptop.

Class Assignments and Topics:

Session 1 – September 5
Topics: Introduction to Statistics. Sampling and Data
Readings: Ch. 1 (1.4 on your own)

Session 2- September 19
Topics: Summarizing data: Descriptive Statistics I
Assignments: Problem Set 1 – due September 20
Readings: Ch. 2: Sections 2.1, 2.2, 2.3, 2.4, 2.5

Session 3- September 20
Topics: Descriptive Statistics II. Introduction to probability.
Readings: Ch. 2: Sections 2.6, 2.7 & 2.8.

Session 4 - September 26
Topics: Probability
Assignments: Problem Set 2 – due October 3
Readings: Ch. 3

Session 5- October 3
Topics: Discrete random variables. The binomial distribution.
Readings: Sections 4.1, 4.2 & 4.3

Session 6- October 10
Topics: Continuous Random Variables. The Uniform distribution. The Normal distribution.
Assignments: Problem Set 3 – due October 17
Readings: Ch. 5: Sections 5.1, 5.2. Ch. 6: Sections 6.1 & 6.2

Session 7- October 17
Buffer and Review Session in class

Session 8- October 24
Midterm on the first 6 Chapters (bring pocket calculator and laptop)

OCT 28 - NOV 3 Fall Break (No Classes)

Session 9 – November 7
Topics: Foundations of statistical inference. The Central Limit Theorem. Introduction to confidence intervals.
Readings: Ch. 7: Section 7.1, Ch. 8: Section 8.1

Session 10 – November 14
Topics: Confidence Intervals. Introduction to Hypothesis Testing.
Readings: Ch. 8: Sections 8.2 & 8.3
Assignments: Problem Set 4 – due November 21

Session 11 – November 21
   Topics: Hypothesis Testing
   Readings: Ch. 9

Session 12 – November 28
   Topics: Linear Regression and correlation I
   Assignments: Problem Set 5 – due December 5
   Readings: Ch. 12: Sections 12.1, 12.2 & 12.3

Session 13 – December 5
   Topics: Linear Regression and correlation II
   Readings: Ch. 12: Sections 12.4, 12.5

Session 14 – December, 12
   CUMULATIVE FINAL EXAM (bring pocket calculator and laptop)

Session 15 To be decided
   A Session on Stata to introduce the main features of this statistical software.

Classroom Etiquette

- Eating is not permitted in the classrooms. Bottled water is permitted.

- Cell phones should be turned off during class time.

- The use of personal laptops and other electronic handheld devices are prohibited in the classroom unless otherwise specified by the professor.

- We recycle! So keep it green! Please dispose of trash in the clearly marked recycle bins located throughout the on campus buildings

Suggested Co-curricular Activities
Suggested optional co-curricular activities will be announced in class and/or via email by the professor throughout the semester.

Your Instructor
Carla Rampichini PhD is Full Professor of Statistics at the University of Florence, Department of Statistics, Computer Science, Applications (link). Her research interests relate mainly to random effects models for multilevel analysis, program evaluation and causal inference. Her methodological work is joined with applications on real data, often concerning the effectiveness of universities, but she also made applications on demographic and socio-economic data. She presented her research work at many Italian and international conferences and workshops. She has authored several scientific articles on statistical models, with applications to education, health and socio-economic data. and some relevant results of her research work on multilevel models have been published on international journals, such as Statistical Modelling, Structural Equation Modeling, and Journal of Educational and Behavioral Statistics.