



# Introduction to Quantitative Methods

Instructors:

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Course assistants:

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Lecture: Tuesday, 11:00-13:00, Seminar Room 2, Badia Fiesolana  
Lab: Monday, 9:00-11:00, Seminar Room 2+3

*Compulsory seminar for all 1<sup>st</sup> year researchers (No registration required)*

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This course is an introduction to quantitative methods in the social sciences and is obligatory to all first-year SPS students. The course covers measurement, hypothesis testing and statistical inference, linear regression, and regression for binary outcomes. The course consists of lectures and labs (either in STATA or R), for which the students are required to do the homework assigned each week. For each lecture, we assign readings that you are expected to do in advance.

Those of you who have not taken courses in quantitative methods, are new to Stata, or need to brush up their skills in these, are **strongly** encouraged to take the Introduction to [Data Analysis and Stata](#) course in September. You will need the skills taught at that course to successfully follow Introduction to Quantitative Methods.

For those of you who are already more advanced in quantitative research, we try to assign (voluntary) extra homework on issues that go deeper into each week's topic.

The software packages used in the labs are STATA and R. If you are familiar with one of them, it is a good idea to learn the other during the course. The September class provides an introduction to Stata; additionally, there will be an introduction to R during the first week of the course.

Your homework needs to be uploaded on the course site before the lab. You can collaborate and learn from each other when doing the homework, but you still need to do your homework yourself; it is not acceptable to simply copy the homework from your mate.

## Coursebook:

Agresti, Alan (2018). *Statistical Methods for the Social Sciences*, Fifth edition. Pearson.

This is the main book used in the course. The library has copies of it, but it is not a bad idea to purchase it.

Other books, which cover the issues and can be helpful include:

Gordon, R. (2015). *Regression Analysis for the Social Sciences*, 2nd Edition. Routledge.

Imai, K. (2017). *Quantitative Social Science: An Introduction*. Princeton.

Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach*, 4-6th Edition. Nelson Education.

Angrist, J. and J.-S. Pischke. (2009). *Mostly Harmless Econometrics*. Princeton

Field, A., and J. Miles. (2012). *Discovering statistics using R*. Sage.

Dalgaard, P. (2008). *Introductory statistics with R*. Springer Science & Business Media.

Treiman, D J. (2009). *Quantitative Data Analysis: Doing Social Research to Test Ideas*. Jossey-Bass.

## Schedule:

### **Week 1: Overview of the purpose of quantitative research and of social science data and measurement.**

Readings: Agresti, Ch. 1-2.1

Supplementary readings: Angrist and Pischke Ch. 1; Gordon Ch. 1

Lecture: Tuesday, 1 October 2019, 11:00-13:00, Seminar Room 2

R Class: **Friday, 4 October 2019; 9:30-12:30**, Seminar Room 2

### **Week 2: Sampling and uncertainty**

Readings: Agresti, Ch. 2.2–3, 5.1–5.3

Supplementary readings: Imai, Ch. 3, 7.1; Treiman, Ch. 9.

Lecture: Tuesday, 8 October 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 14 October 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 14 October 2019, 9:00-11:00, Seminar Room 3

### **Week 3: Hypothesis testing**

Readings: Agresti, Ch. 5.4–6

Other readings: Imai, Ch. 7.2; Treiman, Ch. 1.

Lecture: Tuesday, 15 October 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 21 October 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 21 October 2019, 9:00-11:00, Seminar Room 3

#### **Week 4: Binary regression and ordinary least squares estimation**

Literature: Agresti, Ch. 9.

Other sources: Imai, Ch. 4; Wooldridge Ch. 2 & 3; Field et al., Ch. 7.1–7.5; Dalgaard, Ch. 6; Gordon, Ch. 5; Treiman, Ch. 5.

Lecture: Tuesday, 22 October 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 28 October 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 28 October 2019, 9:00-11:00, Seminar Room 3

#### **Week 5: Multiple regression**

Readings: Agresti, Ch. 10–11

Additional readings: Wooldridge, Ch. 2 & 3; Field et al., Ch. 7.6–7.8, 7.11-7.12; Dalgaard, Ch. 11, Imai 4.3. Gordon, Ch. 6, 7; Treiman, Ch. 6.

Lecture: Tuesday, 29 October 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 3 November 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 3 November 2019, 9:00-11:00, Seminar Room 3

#### **Week 6: Regression assumptions and inference**

Readings: Agresti, Ch. 13.2, 14.1–14.3

Additional readings: Imai, Ch. 7.3; Wooldridge, Ch. 4 & 5; Field et al. Ch. 7.7, 7.9; Dalgaard Ch. 11; Gordon, Ch. 11; Angrist and Pischke Ch. 8.

Lecture: Tuesday, 4 November 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 11 November 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 11 November 2019, 9:00-11:00, Seminar Room 3

#### **Week 7: More regression topics**

Readings: Agresti, Ch. 12.1, 13.1–13.2, 14.4–14.6

Other readings: Gordon, Ch. 7, 9; Treiman, Ch. 7, 11.

Lecture: Tuesday, 12 November 2019, 11:00-13:00, [Sala del Capitolo](#)

Lab (Stata): Monday, 18 November 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 18 November 2019, 9:00-11:00, Seminar Room 3

#### **Week 8: Interaction effects**

Readings: Agresti, Ch. 11.4

Other readings: Gordon, Ch. 8, 10,

Lecture: Tuesday, 19 November 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 25 November 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 25 November 2019, 9:00-11:00, Seminar Room 3

**Week 9: Logistic regression**

Readings: Agresti, Ch. 15

Other readings: Field et al., Ch. 8; Treiman, Ch. 13–14

Lecture: Tuesday, 26 November 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 2 December 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 2 December 2019, 9:00-11:00, Seminar Room 3

**Week 10: Week 10: Advanced topics**

Lecture: Tuesday, 3 December 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 9 December 2019, 9:00-11:00, Seminar Room 2

Lab (R): Monday, 9 December 2019, 9:00-11:00, Seminar Room 3

**Week 11: Recap**

Lecture: Tuesday, 10 December 2019, 11:00-13:00, Seminar Room 2

Lab (Stata): Monday, 16 December 2019 TBC

Lab (R): Monday, 16 December 2019 TBC