Applied Statistics

Professor: Walter Garcia-Fontes
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Office hours: (or state by appointment) Tuesdays 4pm-6pm

Teaching assistant: Sandra Kaya

Course Description

Decision making requires information, and statistical data provide a lot of information. Statistics is all about understanding a chaotic set of very large data. We have to leave behind our subjective vision of things and let the data talk. For this we have descriptive and analytical tools that we will learn and review in this course. The course will be more practical than theoretical, but we need to discuss some conceptual fundamentals

Objectives

Understanding and learning to work with basic statistical concepts and tools including:

- Using descriptive statistics and figures to summarize data.
- Working with data sets with one numerical variable or one categorical variable
- Analyzing data sets with combinations of numerical and categorical variables
- Using regression analysis
- Understanding correlation and causality
- Implementing sampling design, hypothesis tests and confidence intervals
- Introducing time Series analysis

Methodology

The methodology is based on computer room discussion of the main statistical tools and methods with the use of business oriented data sets.

Evaluation criteria

- 30% based on course assignments
- 20% team project
- 20% midterm
- 30% final exam (Midterm discarded if final exam has higher grade, in which case final exam counts 50% and midterm 0%)

Students are required to attend 80% of classes. Failing to do so without justified reason will imply a Zero grade in the participation/attendance evaluation item and may lead to suspension from the program.

As with all courses taught at the UPF BSM, students who fail the course during regular evaluation will be allowed ONE re-take of the examination/evaluation. Students that pass any Retake exam should get a **5 by default as a final grade for the course.** If the course is again failed after the retake, students will have to register again for the course the following year.

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the "Retake" period). In the meantime, the student will get an "incomplete", which will be replaced by the actual grade after the final exam is taken. The "incomplete" will not be reflected on the student's Academic Transcript.

Plagiarism is to use another's work and to present it as one's own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the "Honor Code," students acknowledge that they understand the schools' policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program."

Instructor roles

Professor: All matters related to the lectures, exams and general issues in the course should be directed to me.

Teaching Assistant: Questions about practice sessions and grading of assignments should be directed to the teaching assistant.

Communication procedures

For general topics the preferred way of asking is in the Support Forum at the learning on-line platform. For personal matters (grading and personal issues in the course such as missing assignments or absences) should be addressed by personal email, which will be answered within 24 hours. You are also welcome during the office hours (Wednesdays 4pm-6pm, Office 20.220, Jaume I Building, Ciutadella Campus) for any matter related with the course.

Classroom etiquette

Inappropriate or disruptive classroom behaviour will not be tolerated. Web surfing or use of electronic devices in a disruptive manner may imply possible removal from the class. Please silence your cell phones before class starts.

If you have to arrive late, leave the classroom and return, or leave before the class ends, tell it beforehand to the instructor.

Use of laptops: Laptops can be used in class for note taking or following lecture slide presentations. After four weeks of class this policy will be reviewed, and if I receive only one complain about someone being bothered because of disruptive web surfing, laptop use may be

revoked for the whole class. If email or the web has to be unavoidably checked during class, please do so discreetly and quickly.

Calendar and contents

Week			Topic/content	Reading
1 (Sep 25)	Day 1		Probability (i)	CSE, Chapter 9
	Day 2	Probability and statistics	Probability (ii)	CSE, Chapter 9
2 (Oct 1-2)	Day 1		Probability (iii)	CSE, Chapter 9
	Day 2		Discrete probability distributions	CSE, Chapter 10
3 (Oct 8-9)	Day 1		The normal distribution	CSE, Chapter 11
	Day 2		Statistical inference (i)	CSE, Chapter 12
4 (Oct 15-16)	Day 1		Statistical Inference (ii)	CSE, Chapter 12
	Day 2		Significance testing (i)	CSE, Chapter 13
5 (Oct 17-18)	Day 1		Significance testing (ii)	CSE, Chapter 13
	Day 2		Non Parametric tests (i)	CSE, Chapter 14
6 (Oct 29-30)	Day 1		Non Parametric tests (ii)	CSE, Chapter 14
	Day 2		Midterm (until significance testing)	
7 (Nov 5-6)	Day 1	Regression and Time Series	Simple regression	KSMS, Chapter 3
	Day 2		Prediction	KSMS, Chapter 4
8 (Nov 12-13)	Day 1		Dummy variables	KSMS, Chapter 5
	Day 2		Data problems	KSMS, Chapter 6
9 (Nov 19-20)	Day 1		Multicollinearity and Ommited Variables (i)	KSMS, Chapter 7
	Day 2		Multicollinearity and Ommited Variables (ii)	KSMS, Chapter 7
10 (Nov 26-27)	Day 1		Time Series (i)	KSMS, Chapter 9
(Dec 3-4)	Day 2		Time Series (ii)	KSMS, Chapter 9

Note: CSE – Curwin, Slater and Eadson, KSMS – Kilbanoff, Sandroni, Moselle and Saraniti

Midterm and Final Examination

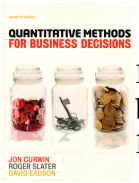
We will have a midterm on Tuesday October 30, at the same room and time of the class. It is going to be a two hour test (closed book). It counts for 20% of the grade. The final exam (closed book) will be held on Monday December 10, between 1pm and 3pm and it counts for 30%. If you get a better grade in the final exam, the grade of the midterm exam is discarded and the final exam counts 50%. See all other evaluation criteria at the evaluation section.

Team Project

There will be a team project assignment. You can form teams from up to four members. There will be three deliveries of team project results: 1) Project outline, 2) First draft and 3) Final draft. Dates for the deliveries will be announced in the course web page.

Reading Materials/ Bibliography/Resources

We will use two textbooks, the first one for the first part of the course, and the second one for the final part of the course.



First part of the course: Quantitative methods for business decisions, by J. Curwin, R. Slater and D. Eadson, seventh edition, CENGAGE Learning

Second part of the course: Managerial Statistics, A Case-based approach, by P. Klibanoff, A. Sandroni, B. Moaselle and B. Saraniti, Thmoson – South-Western

We will use both SPSS software, available at the computer labs at the school. A free-version clone of SPSS called PSPP is available, but it does not include all the functionality of SPSS. You can download PSPP from:

http://www.gnu.org/software/pspp/get.html

We will also use package for Microsoft Excel called Kstat, which is available from:

http://www.kellogg.northwestern.edu/faculty/weber/emp/_session_2/kstat.htm

You can also use any other software that you have or know, but at your own risk as we are not going to give support to these alternative software.

It is convenient in any case that you get familiar with the output of the abovementioned packages, as it will be included in exams for interpretation.

We will manage all assignments and course material through the on-line learning platform, Aula Global.

Bio of Professor

Walter Garcia-Fontes joined the Department of Economics and Business after getting his Ph.D. in Economics at Stanford Universtiy (1992). His research interests are in Industrial Organization, corporate innovation, technological change and applied econometrics. He has published his research in leading international field journals. He has coordinated various projects in different European Commission Framework Programmes, studying the European chemical industry and the organizational changes related to new industrial relations.