

## **BUSINESS RESEARCH METHODS (B)**

**Academic Year:** 2023/2024

**Term:** 2<sup>nd</sup> Semester

**ECTS:** 7

---

### **INSTRUCTOR(S)**

António Fidalgo, Miguel Salema

### **CONTACTS AND OFFICE HOURS**

Email: [antonio.fidalgo@ucp.pt](mailto:antonio.fidalgo@ucp.pt); [misalema@ucp.pt](mailto:misalema@ucp.pt) Office: N/A Office hours by appointment

### **BIOGRAPHY**

**António Fidalgo** is an Affiliate Professor at the CATÓLICA-LISBON School of Business & Economics. He has a M.A. in Economics (Universitat Pompeu Fabra, Spain) and a Ph.D. in Economics (Lausanne University, Switzerland). He was a Lecturer at Fresenius University of Applied Sciences, (Germany) and also taught at Boston University (USA) and the University of Magdeburg (Germany). His research focuses on long-run economic development, employing a quantitative empirical approach and informed by economic theory. Outside academia, he worked as a consultant in data analysis for Stackdriver (later bought by Google).

---

### **COURSE OVERVIEW**

This course introduces quantitative methods used to extract information from data with the ultimate goal of improving managerial decisions. The course's approach is twofold. First, it develops concepts and methods that are useful in the current data-oriented business environment: from data collection to statistical models of data interpretation. Second, it introduces software tools to carry out analyses of real-world datasets and to report results.

---

### **LEARNING OBJECTIVES**

After taking the class, students should master all the steps of a data analysis project such as:

- Identification of research question,
- Model construction,
- Database construction and tidying of data,
- Distinguishing data types and the appropriate technique for their treatment,
- Elements of good graphical representation,
- Definition and estimation of statistical models,
- Model interpretation and predictions.

Importantly, students should recognize the potential pitfalls of each step as well as understand the relevance and limitations of the different techniques for the problem at hand.

---

### **TEACHING AND LEARNING METHODOLOGY**

The learning methodology is based on class lectures and homework. The lectures describe a structured set of selected relevant concepts along with illustrative examples. Students are invited to participate in class

World Ranked – Triple Accredited – Award Winning



discussions as a way to successfully master the material. The homework consists in assignments based on the topics covered in the lectures and requiring coding in the software R.

---

## REQUIRED BACKGROUND

Students should have attended at least one undergraduate class in statistics, and master its familiar concepts such as random variables, probability rules, statistics vs parameters, the Normal distribution, etc.

---

## ASSESSMENT

Quizzes and Assignments	group/individual grade	1/3
Mid-term exam	Individual grade	1/3
End-term exam	individual grade	1/3

A minimum grade of 7.5 as the average of the midterm and the endterm exams is also required.

---

## COURSE CONTENT

1. Refresh of statistical concepts, incl. tests of hypotheses
2. Advanced R, RStudio and {tidyverse}
3. Data collection and organization
4. Issues in model construction
5. Regression analysis
6. Classification
7. Predictions
8. (Time allowing) Other advanced statistical concepts and methods

---

## BIBLIOGRAPHY

### Required readings:

Diez, D., Çetinkaya-Rundel, M., & Barr, C. (2019), OpenIntro Statistics. <https://www.openintro.org/book/os/>

Field, A. (2012). Discovering Statistics using R. London: Sage Publications.

James, G., Witten, D., Hastie, T., & Tibshirani, R. (2013). An Introduction to Statistical Learning. New York: Springer.

**Extra Costs (case studies, platforms...):** None

---

## ADDITIONAL RESOURCES

Complementary material such as research articles, case studies, or lectures notes will be introduced during the class.

Bootstrap is a curated collection of resources, techniques, and personal development tools from academic sources, thought-leaders, and well-established productivity practices. [bootstrap\\_ - Productivity & Study Resources | CATÓLICA-LISBON \(ucp.pt\)](#)

---

## CODE OF CONDUCT AND ETHICS

Católica Lisbon School of Business and Economics is a community of individuals with diverse backgrounds and interests who share certain fundamental goals. A crucial element to achieve these goals is the creation and maintenance of an atmosphere contributing to learning and personal growth for everyone in the community. The success of CATÓLICA-LISBON in attaining its goals and in maintaining its reputation of academic excellence depends on the willingness of its members, both collectively and individually, to meet their responsibilities.

Along with all the other members of our community, students are expected to follow professional standards and CATÓLICA-LISBON standards of Academic Integrity. Some details should be mentioned here: Please arrive on time for class with uninterrupted attendance for the duration of the class. Signing attendance sheet for anyone else in the class constitutes fraud and a violation of the CLSBE code of conduct. Use of computers and other electronic devices during the class is not allowed unless expressly requested by the instructor of the course. Students who persistently act in a disruptive and disrespectful manner during the class session may be invited to leave.

Students are expected to behave at all times according to the fundamental principles of academic integrity, including honesty, trust, fairness, respect, and responsibility. In particular,

- a. In **individual graded assignments** of any type, students may not collaborate with others or use any materials without explicit permission from the instructor of the course;
- b. In **group assignments** and reports, all students listed as authors should have performed a substantial amount of work for that assignment;
- c. It is dishonest to fabricate or falsify data in experiments, surveys, papers, reports or other circumstances; fabricate source material in a bibliography or “works cited” list; or provide false information in other documents in connection with academic efforts;
- d. **Plagiarizing**, i.e. “to steal and pass off the ideas or words of another as one’s own and or to use another’s production without crediting the source” (Merriam-Webster Dictionary) is an Academic Integrity breach. It can be avoided by using proper methods of documentation and acknowledgement. Visit this guide for additional resources on how to avoid plagiarism in your written submissions: <https://www.turnitin.com/papers/understanding-the-turnitin-similarity-report-student-guide>
- e. In **exams** students must not receive or provide any unauthorized assistance. During an examination, students may use only material and items authorized by the faculty. Use of smartwatches or other communication devices is not permitted during the exam.

Academic integrity breaches will be dealt with in accordance with the school’s code of Academic Integrity: <https://www.clsbe.lisboa.ucp.pt/system/files/assets/files/academicintegritycode.pdf>

---

## APPENDIX

N/A.

