

Ph.D. program in Statistics

40200 – Applied Survival (Duration) Data Analysis

Marco Bonetti, Bocconi University

2020/21

The duration of the course is 24 classroom hours. The course will discuss the principles of the theory and practice of survival analysis. Topics will cover (with some variations):

1. Introduction to survival (time-to-event) data analysis: relevant quantities, censoring
2. Parametric models
3. Nonparametric estimation and comparison of survival functions; Log-rank test, Gini test for survival data, and other tests
4. Design and conduct of survival studies: sample size determination, (block) randomization; balancing; sequential monitoring
5. Cure rate models
6. Cox proportional hazards regression model
7. Introduction to competing risks analysis and to multi-state models

The course will consist of both lectures and the use of statistical software for the implementation of some of the techniques discussed in the lectures. Some programming may also be necessary to develop some functions for the assignment.

Grading: Written final exam in class (70% of final grade). You should expect some of the small problems left for you to work on at home to be possible questions on the exam. In addition, one assignment (30% of grade) due on a date to be decided. As an alternative to the assignment, an individual presentation of one or more articles may be chosen.

Note: Students from non-Statistics Ph.D. programs and qualifying MSc students are encouraged to take the course. A preliminary meeting with the Instructor is suggested to ensure that the statistical material necessary to take this course has indeed been covered in other courses.

Contact information:

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