



Preparatory Course in Inferential Statistics
Professor Massimo Guidolin

COURSE OBJECTIVES

The course introduces basic concepts from **inferential statistics** using a hands-on approach and Excel work outs. The course has two types of audiences:

1. Students who want to review concepts encountered before but who value having them refreshed and ready more than the time required to attend the prep-course in August.
2. Students who self-assess that they may presenting from “holes” in their background with reference to one or more of the topics/lectures listed below.

PRECISE TIME SCALE AND SUPPORTING MATERIALS

The slides covered in the course is outlined in the *lecture slides and notes made available via the class website*, at:

<http://didattica.unibocconi.eu/mypage/map.php?IdUte=135242&idr=14063&lingua=eng>

(yes, please scroll to the middle). Lecture notes, **exercise sets** (with solutions), and class presentations should be taken as a guidance for further study on the textbooks indicated below.

Casella, G, R., Berger, *Statistical Inference*, Duxbury Press, 2001

Topic	Dates IT	Dates ENG	Useful for:	Readings
1. Random sampling: Sample statistics and their properties Location-scale family and their properties The case of unknown variance: t-Student distribution	22/08	22/08	Everywhere!	Casella-Berger, chapter 5 and parts of 1-3 as general background
2. Modes of convergence and point estimation: Convergence in probability and weak law of large numbers Almost sure convergence and strong law of large numbers Convergence in distribution and the central limit theorem Estimators and methods Maximum likelihood estimation (MLE) Evaluating estimators: MSE, UMVUE, Consistency	22/08 23/08 early part	22/08 23/08 early part	20188, 20191, 20192, 20163	Casella-Berger, chapter 7
3. Hypothesis testing:	23/08	23/08 24/08 early part	20191, 20192, 20163	Casella-Berger, chapter 8
4. Interval Estimation	23/08 as time permits	24/08 as time permits	20191, 20192, 20163	Casella-Berger, chapter 9

Legend:

20163: Risk Management

20188: Quantitative Finance and Derivatives – Module 1.

20191: Financial Econometrics and Empirical Finance – Module 1.

20192: Financial Econometrics and Empirical Finance – Module 2.