Interest Rate and Credit Risk Models

MASTER IN MATHEMATICAL FINANCE
2017/2018

Jorge Barros Luís
(jbluis@iseg.ulisboa.pt)

PROGRAM

Part I. INTRODUCTION TO FIXED INCOME MARKETS AND INTEREST RATE RISK

Part II. INTEREST RATE MODELS

STRUCTURE
Lectures will have a significant theoretical component, even though with practical examples whenever appropriate. Students are expected to have a strong background in financial maths.

LANGUAGE
The course will be taught in English, unless all participants are Portuguese speakers, in which case lectures will be in Portuguese (all materials are in English and available through Aquila platform).

ASSESSMENT
There are two assessment components:
    - Mini-tests/Practical works/Participation in lectures (T) - 30%
    - Final Exam (FE) - 70%

Final grade: **Max(0.3T+0.7FE ; FE)**

To pass each student must have a minimum of 8 points (out of 20) in the Final Exam. The continuous evaluation grades may only be used during the 2017-2018 exam periods, and only once.

REFERENCES
Background literature
- Fabozzi, Frank J., (2007), *"Bond Markets, Analysis and Strategies",* 7th Ed., Prentice-Hall International Ed., Englewood Cliffs, New Jersey.

Main References
- Björk, Tomas (2004), *Arbitrage Theory in Continuous Time*, second edition, Oxford University Press.
- Schönbucher, Phillip J. (2003), Credit Derivatives Pricing Models, Wiley Finance.

Other References

- Anderson, Nicola, Francis Breedon, Mark Deacon, Andrew Derry, Gareth Murphy (1996), Estimating and Interpreting the Yield Curve", Wiley.
- Campbell, John Y and Andrew W. Lo (1997), "The Econometrics of Financial Markets, Princeton University Press.
- Cassola, Nuno and Jorge Barros Luís, "The term structure of interest rates: a comparison of alternative estimation methods with an application to Portugal", Banco de Portugal, WP 17-96, Oct.1996.
- Cochrane, John H. (2005), "Asset Pricing", Revised Edition, Princeton University Press.
- Cont, R. and P.Tankov (2004), Financial Modelling with jump processes, Chapman&Hall Financial Mathematical Series
- Duffie, Darrell and Kenneth J. Singleton (2003), *Credit Risk – pricing, measurement and management,* Princeton Series in Finance
- Hull, John (2014), "Options, Futures and Other Derivatives", 9th Edition, Prenctice-Hall.
- Lando, David (2004), *Credit Risk Modelling – theory and applications*, Princeton Series in Finance.