ORAL INTERVIEW PREPARATION

The topics to be prepared are listed at the bottom of this page.
The Committee will declare unsuitable those students who demonstrates serious deficiencies and for this reason they won't be allowed to enrolled. Students declared unsuitable can freely repeat the test until eligibility is achieved.
The Interview will take place remotely in July, September, November and February. The dates will be published yearly on the Department website.
Students must know the main notions taught in the three-year economics basic courses (basic mathematics, financial mathematics, statistics, business economics, micro and macroeconomics). For their preparation they may use textbooks and/or their course notes. Alternatively, they may use the materials indicated on this web page. The topics to be assessed are indicated below.
Students will have to focus on the definitions of the main topics taught during their Junior degree in the aforementioned areas, in particular on the topics listed below.

ECONOMICS

Regarding the economic area, the admission test questions will focus on the main topics of microeconomics and macroeconomics. Specifically, students are required to be able to answer questions on:

-The theory of the consumer
-The theory of the firm
-Market structures
-The determinants of aggregate demand
-The IS-LM model
-The Phillips curve

References:

-Frank, R.H., Cartwright, E. (2020), *Microeconomics and Behaviour*, 3rd Edition, McGraw-Hill Education (ISBN: 1526847841).
-Frank, R.H., Cartwright, E., Piras, R. (2021), *Microeconomia*, 8° edizione, McGraw-Hill Education (ISBN: 883869706X).
-Blanchard, O. (2021), *Macroeconomics*, 8th Edition, Pearson (ISBN: 9780136713883).
-Blanchard, O., Amighini, A., Giavazzi, F. (2021), *Scoprire la macroeconomia: quello che non si può non sapere*, Il Mulino (ISBN: 9788815290168).

Examples of questions for Microeconomics and Macroeconomics

1. What is a demand curve?
2. Describe the elements entering the budget constraint of a consumer
3. What is a supply curve?
4. Define the notions of total cost, average cost and marginal cost
5. What are the main differences between a monopolistic and an oligopolistic market?
6. What are the determinants of aggregate demand in an open economy with a public sector?
7. Describe the tools and the effect of fiscal policies on the economic system
8. Describe the tools and the effect of monetary policies on the economic system
9. What is the relation linking inflation to unemployment?

MATHEMATICS AND FINANCIAL CALCULUS

- *General facts about real functions.* Elementary functions and their graphs; geometric transformations.
- *Differential calculus.* Definition of derivative and its geometric interpretation; derivatives of

elementary functions; differentiation rules; relationship between sign of the derivative and
monotonicity of the function.
- *Linear algebra.* Algebraic operations with vectors and matrices; determinant of square matrices.
- *Financial calculus.* Simple and compound interest rates; annuities (present value, final value,
perpetual annuities); amortization plans.

References

- Peccati – Salsa - Squellati*, "Mathematics for Economics and Business", (EGEA)* covers all the contents required.
- For the contents of financial calculus also the material available at the following link may be consulted: **https://web.uniroma1.it/memotef/sites/default/files/file%20lezioni/Matematica%20Finanziaria%20dispense%202017_0.pdf**

Examples of questions

1. Draw the graph and illustrate the main features (domain, limits, monotonicity) of the exponential/logarithmic/power function.
2. Give the definition of derivative for a real function and illustrate its geometric meaning.
3. Write the differentiation rule for the product/ratio/composition of two functions.
4. Compute the product of two given matrices.
5. Describe how the capital accumulates starting from an initial amount C invested for N years with the annual interest rate I in the case of simple interest and of compound (with annual compounding) interest rate.
6. Consider the time in years. Let C be an amount due in N years and let D be the annual discount rate. Write the formula for the present value C in the case of simple and in the case of compound discount.

STATISTICS

Probability

-The "concept" of probability. The Kolmogorov axioms.
-The Binomial distribution and its properties
-The Normal distribution and its properties

Inference

-Population and sampling
-The sample mean
-Confidence intervals for the mean of a normal distribution
-The logic of hypothesis testing
-Test for the mean of a normal distribution

Modeling

-Correlation
-Simple regression

References:

-http://onlinestatbook.com/Online_Statistics_Education.pdf

or (in Italian)

-Borra- Di Ciaccio, *Statistica. Metodologia per le scienze economiche e sociali*, Mc Graw-Hill

Example of questions

1. What is binomial distribution and its characteristics?
2. Describe the main properties of the normal distribution.
3. Introduce the distribution of the sample mean for normal samples.
4. Illustrate the confidence interval for the mean of a normal distribution and its meaning.
5. Illustrate the definition and the properties of the correlation coefficient.
6. How the regression line is constructed?

BUSINESS

A) **BUSINESS AND ADMINISTRATION**

-Basic concepts about Balance Sheet
-Notes on the main financial statement documents
-Informative purposes of company's financial statements
-Basic profitability indicators (EBITDA, RoE, RoI, RoA…)
-Indicators of financial equilibrium
-Concepts of sources and applications of funds
-Main corporate functions and their tasks
-The meaning of the break-even point (BeP)

B) **FINANCIAL INSTRUMENTS AND OPERATORS**

-Basic concepts about financial instruments
-Fundamentals of financial risks
-The role of banks and financial intermediaries

References:

-P.M. Ferrando – M. Zuccardi Merli, *Capitale e reddito nel funzionamento del sistema aziendale*, Giappichelli, Torino, ultima edizione.
- Hull J. C. – Options, *Futures and Other Derivatives*, Pearson, 2017
-Resti A., Sironi A. – *Risk Management and Shareholders' Value in Banking*, John Wiley and Sons, 2007

Example of questions:

A)

1.Which kind of data can be found in balance sheet assets?
2.What does RoI mean and how can you use it?
3.Which data do you need to derive a BeP?
4.What are the main goals of "Human resources" function?
5.What is the "Marketing" function?

B)

6. What are the most popular Fixed Income typologies?
7. What are the main risks that a Risk Management has to handle?
8. What is the role of the credit rating agencies?
9. How does a clearing house work?
10. What is an interest-rate derivative?