

# Entrance Qualifications Economics, Mathematics and Statistics

## Requirements for Economics

It is taken for granted that students have a basic knowledge of neoclassical micro- and macro-economic theory for undergraduates.

### a) Microeconomics

- Consumer Theory: budget constraint, preferences, utility, optimal choice, demand.
- Production Theory: production set, production function, short-run and long-run.
- Market structure: demand-supply curve, comparative statics, monopoly.

*Reference: Varian, H.R. (2010), Intermediate Microeconomics: a modern approach, 8<sup>th</sup> edition, WW Norton & Company.*

### b) Macroeconomics

- The main macroeconomic variables and their relation: GDP, unemployment and inflation rates.
- The Keynesian short-run policy model: demand-side policies.
- The Classical long-run policy model: growth and supply-side policies.
- Inflation, deflation and macro policies.
- The supply of money: debt and equity.

*Reference: Colander, D., (2017), Macroeconomics, McGraw-Hill, 17<sup>th</sup> edition (Chapters: 1, 6-9, 14, 16).*

## Requirements for Mathematics

Students should be familiar with the following arguments:

- One variable calculus: foundations and applications.
- Exponents and logarithmic functions.
- Linear Algebra.
- Functions of several variables.

*Reference: Carl P. Simon and Lawrence E. Blume, Mathematics for Economists, WW Norton & Company (Part I, II and III).*

## Requirements for Statistics

Students should be familiar with fundamental principles and tools of descriptive and inferential statistics.

- Descriptive statistics: types of data, graphical representation, summary statistics.
- Elements of probability: elementary probability rules, combinatory calculus.
- Random variables: common families of distribution, sampling distributions.
- Statistical Inference: point estimation, confidence intervals, hypotheses testing.
- Basic regression models: least squares estimates, best linear unbiased estimators.

*Reference: Agresti A. & Franklin C.A., (2013), Statistics: The Art and Science of Learning from Data, 3<sup>rd</sup> edition.*