

Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|---------------------------|----------|--------|----------|-----|--------|------|
| ECON207 | Mathematical Statistics I | 1 | 4 | 0 | 0 | 4 | 5 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | French |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | Introduction to probability theory |
| Content | Counting techniques, conditional probability, univariate and multivariate continuous and discrete random variables, functions of random variables, expected value and variance, Tchebychev Inequality, Law of Large Numbers, Central Limit Theorem |
| References | Schay, G. (2007), Introduction to probability with statistical application. Fouratié J. ve Laslier, J.F. (1987), Probabilités et statistiques. |

Theory Topics

| Week | Weekly Contents |
|------|---------------------------------------------------------------------------|
| 1 | Introduction: probability, subjective and objective probability concepts |
| 2 | Experiments and events and counting techniques |
| 3 | Probability of events: subsets, partitions and population |
| 4 | Conditional probability and Bayes Theorem |
| 5 | Univariate discrete and continuous random variables |
| 6 | Mid-term |
| 7 | Bivariate discrete random variables |
| 8 | Bivariate continuous random variables |
| 9 | Marginal and conditional distributions and independence |
| 10 | Functions of discrete random variables |
| 11 | Functions of continuous random variables |
| 12 | Expected value and variance |
| 13 | Expected value and variance of functions of random variables |
| 14 | Tchebychev Inequality, Law of Large Numbers and the Central Limit Theorem |