Probability refresher

Course title - Intitulé du cours: Probability refresher
Level / Semester - Niveau /semestre: M1 / Semestre 1
School - Composante: TSE
Teacher - Enseignant responsable: Anne RUIZ-GAZEN

Lecture Hours - Volume Horaire CM: 15
TA Hours - Volume horaire TD: /
TP Hours - Volume horaire TP: /
Course Language - Langue du cours: Anglais

Teaching staff contacts - Coordonnées de l’équipe pédagogique:
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Course’s Objectives - Objectifs du cours:
The purpose of this refresher course is to recall the basic notions and results of the probability theory used in probability, statistics, and econometrics courses of the M1 program.

Course content
1. Basic notions of probability: sample space, events, probability measure.
2. Examples of probability spaces, discrete probability space, combinatorial problems, counting rules.
3. Independence and conditional probability, theorem of the total probability, Bayes’ theorem.
4. Random variables. Definitions and examples of discrete and absolutely continuous distributions such as Bernoulli, binomial, Poisson, uniform, exponential, normal.
5. Expectation, general moments, characteristic function.
7. Conditional distribution and expectation.

Prerequisites - Pré requis:
Basic mathematical calculus, including derivatives and integration.

Grading system - Modalités d’évaluation:
There is no grading for this refresher course.

Bibliography/references - Bibliographie/références:
Konrad Menzel: Introduction to statistical methods in economics/MIT Open Course Ware:
https://ocw.mit.edu/courses/economics/14-30-introduction-to-statistical-methods-in-economics-
spring-2009/), Robert B. Ash: Basic probability theory, or any other textbook on basic probability theory at your disposal.