Maestría en Inteligencia Artificial, 2025

Primer semestre

11 de agosto - 5 de diciembre de 2025

Curso de Probabilidad y Estadística (PE 2025)

Probabilidad
Salvador Ruiz Correa
12 de agosto-2 de octubre de 2025
Jueves, 11:00-13:00 horas (32 horas)

Calendar

Lecture	Day	Topic/Activity	
1	August	12	1. Probability theory and random phenomena 2. Probability measure key features. 3. Probability theory and random phenomena. 4. Kolmogorov axioms overview. 5. Probability space $(\Omega, \mathcal{F}, P)$. 5.1 Sample space (Ω). 5.2 σ-algebras.
2		14	5.3 σ-algebra generators. 5.4 Measureble space. 5.5 Product space. 5.6 Borel algebras. 5.7 Measures and probability measure (P) .
3		19	6. Independence. 7. Conditional probability. 8. Chain rule. 9. Bayes theorem.
4		21	9. Random variables. 10. Probability distributions. 11. Cummulative distribution function. 12 Probability density functions.
5		26	13. Examples of random variables. 14. Transformationof random variables.
6		28	15. Random variable moments.
7	September	2	**Quiz 1**
8		4	16. Random vectors. 17. Joint probability distribution. 18. Marginal distribution. 19. Mean vector and covariance matrix. 20. Examples. 21. Stochastic project definition.
9		9	21. Independent random variables. 22. Conditional independence.

10		11	23. Bayes networks. 23.1 Separation Theorem.
11		16	24. Bayes networks inference.
12		18	25. Practice session.
13		23	**Quiz 2**
14		25	25. Markov random fields.
15		30	26. Entropy and Information.
16	October	2	**Final Exam**