

Pre-class preparation

Please watch the following video OR read the following textbook sections from Blitzstein and Hwang's *Introduction to Probability* (second edition):

- Video: 2D LoTUS
- Textbook: Sections 7.2

Objectives

By the end of the day's class, students should be able to do the following:

- State and apply 2D version of LOTUS
- Calculate the expectation of a product of independent random variables.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 7:45AM:

1. Suppose X and Y are Bernoulli($1/2$) random variables, not necessarily independent. Define $p = P(X = 1, Y = 1)$. Use 2D LOTUS to express $\mathbb{E}[XY]$ in terms of p .
2. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like some more clarification on?