



## Seminario Aleatorio

*Sesión 336*

# Non-parametric Zero-Yield Curve Reconstruction

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### Abstract

Fixed income exposure is the "safe haven" for many investors since these products offer steady sources of income at relatively low levels of risk. Practitioners look at the relation between fixed income and the maturity of debt in order to develop new pricing and trading strategies.

Because treasury bonds have no credit risk, one widely used metric to show the relation between yields and the time to maturity is the Zero-Yield Curve (ZYC). For economist and investors, the shape of this curve offers an idea of where the economy is headed as well as expectations for future interest rates.

Zero-yield curves are only known with certainty for few specific maturity dates, thus other maturities are calculated by interpolation. There is a wide selection of interpolation algorithms used in financial markets (e.g. raw linear interpolation, splines and bootstrapping), however, these methods require extra inputs which can affect the shape and reliability of the curve.

On this talk, I will review the known issues of interpolation and show a new non-parametric method based on the k-nearest neighbors algorithm. This method ensures that in regions of monotonicity of the data the interpolating function preserves localness and convexity.

**Viernes 08 de marzo de 2019, 13:00 hrs.**

**Aula 210, Plantel Río Hondo**

El Seminario Aleatorio está destinado tanto a profesores como a estudiantes, por lo que el Departamento de Estadística agradece a los profesores que colaboren invitando a sus alumnos a estas sesiones.

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