

# EECS 126

## 2.4 LECTURE 6

Any  $F_X: \mathbb{R} \rightarrow [0, 1]$  that is nondecreasing, has  $\lim_{x \rightarrow -\infty} F_X(x) = 0$  &  $\lim_{x \rightarrow \infty} F_X(x) = 1$ , and is right-continuous, is the CDF for some RV on some prob. space. This follows from the Kolmogorov axioms.

A RV  $X$  is discrete iff  $F_X(x) = \sum_{x' \in \mathcal{X}} P_X(x')$  for some  $P_X: \mathcal{X} \rightarrow [0, 1]$  (PMF)

