CS 661 Requires Calculus-Based Probability

CS 661 students must be comfortable with calculus-based probability. If you haven’t taken a course in this or don’t remember the material, you will find CS 661 very difficult and probably shouldn’t take the class.

Here’s a simple test to assess your background in calculus-based probability. Suppose that $X$ is an exponentially distributed random variable with given rate $\lambda > 0$; i.e., the density function of $X$ is $f(x) = \lambda e^{-\lambda x}$ for $x \geq 0$, and $f(x) = 0$ for $x < 0$. Derive the cumulative distribution function (CDF) $F(x) = P(X \leq x)$, the expectation, and the variance of $X$. (This is asking for the true (population) mean and variance, not the sample mean and sample variance.) If you cannot do this without looking it up in a book, then you probably do not have the appropriate background for CS 661.